

PRINTRONIX®

User's Manual



ProLine Series 5™ Line Matrix Printer

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1 Overview

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The ProLine Series 5 Line Matrix Printer Family

The **ProLine Series 5**™ printers are a family of line matrix printers consisting of 500, 800, 900, 1200 and 1400 lines per minute (lpm) models packaged in various configurations. All of the models offer software versatility and the latest refinements in line matrix printing technology. The model numbers indicate printing speed and physical configuration. The –12 models are models with 12 mil tips on the print hammers instead of the normal 16 mil. This allows the printing of higher resolution graphics and barcodes (See P and S modes in the [IGP® Programmer's Reference Manual](#)). The –STAK model has the SureStak™ Power Stacker option installed. The different printer models are:

Model Number	Print Speed	Pedestal	Floor Cabinet
P5005A	500 lpm	✓	
P5005A–12	500 lpm	✓	
P5205A	500 lpm		✓
P5205A–12	500 lpm		✓
P5008	800 lpm	✓	
P5208	800 lpm		✓
P5009	900 lpm	✓	
P5209	900 lpm		✓
P5209–STAK	900 lpm		✓
P5212	1200 lpm		✓
P5214	1400 lpm		✓
P5214–STAK	1400 lpm		✓

Warnings and Special Information

Read and comply with all information highlighted under special headings:

WARNING



Conditions that can harm you as well as damage the printer.

CAUTION



Conditions that can damage the printer or related equipment.

IMPORTANT



Information that is vital to the operation of the printer.

NOTE: Information affecting printer operation.

Related Documents

Following is a list of related documentation:

- **ProLine Series 5™ Printer Maintenance Manual** — Explains how to maintain and repair the **ProLine Series 5** line matrix printer at the field service level of maintenance.
- [*Coax/Twinax Programmer's Reference Manual*](#) — Covers the host control codes and character sets for the coax and twinax emulations.
- [*LinePrinter Plus® Programmer's Reference Manual*](#) — Covers the host control codes for the LinePrinter Plus emulations.
- [*IGP®/PGL™ Programmer's Reference Manual*](#) — Provides information used with the optional IGP® Printronix emulation enhancement feature.
- [*IGP/VGL Programmer's Reference Manual*](#) — Provides information used with the optional Code V™ Printronix emulation enhancement feature.
- [*ANSI Programmer's Reference Manual*](#) — Provides host control codes and character sets for the ANSI emulation.
- [*IPDS™ Twinax Emulation Programmer's Reference Manual*](#) — Provides an overview of Intelligent Printer Data Stream™ (IPDS) features, commands, and diagnostics.
- [*Character Sets Reference Manual*](#) — Information about and examples of the characters sets available in Printronix line matrix printers.
- [*PrintNet Network User's Manual*](#) — Information about network protocols, configuration, and operation.

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Before You Begin

Read this chapter carefully before installing and operating the printer.

The printer is easy to install, but for your safety, and to protect valuable equipment, perform all the procedures in this chapter in the order presented.

Power Requirements

The printer must be connected to a power outlet that supplies 88 to 135 Volts AC or 178 to 270 Volts AC at 47 to 63 Hz. The printer automatically senses and adjusts itself to conform to the correct voltage range.

Primary circuit protection is provided by the power switch, which is also a circuit breaker. Consult an electrician if printer operation affects local electrical lines. See Appendix A for additional power specifications.

IMPORTANT *It is recommended that printer power be supplied from a separate AC circuit protected at 10 amperes for 120 volts or 5 amperes for 230 volts at 50 or 60 Hertz.*

!

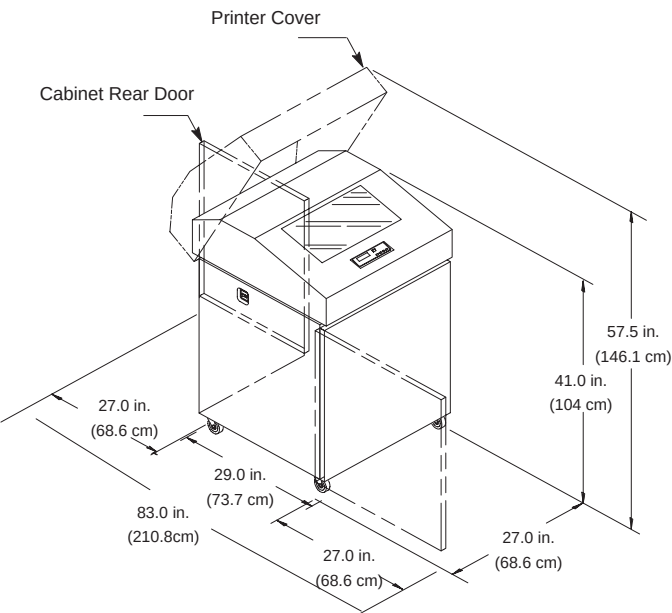
Select a Site

Select a printer site that meets all of the following requirements:

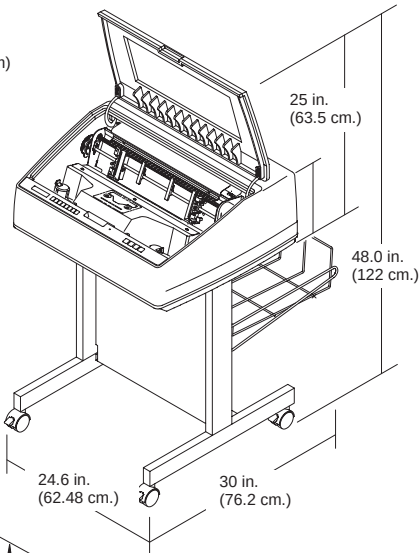
- Permits complete opening of the printer cover and doors.
- Allows at least three feet of clearance behind the cabinet printer model.
(This permits air to circulate freely around the printer and provides access to the paper stacking area.)
- Has a standard power outlet that supplies 88–135 Volts AC or 178–270 Volts AC power, at 47 to 63 Hz.
- Is relatively dust-free.
- Has a temperature range of 10° C to 40° C (50° F to 104° F), and a relative humidity from 15% to 90% non–condensing.
- Is located within the maximum allowable cable length to the host computer. This distance depends on the type of interface you plan to use, as shown in the following table:

Interface Type	Maximum Cable Length
Centronics Parallel	5 meters (16 feet)
Dataproducs Parallel	12 meters (40 feet)
IEEE 1284 Parallel	10 meters (32 feet)
Serial RS–232	15 meters (50 feet)
Serial RS–422	1220 meters (4000 feet)
Dataproducs Longlines	150 meters (500 feet)
Coax	1500 Meters (4920 feet)
Twinax	1500 Meters (5000 feet)
Twinax (Shielded cable)	1500 Meters (5000 feet)
Twisted Pair / Type 3	300 Meters (985 feet)
Ethernet 10Base–T	100 meters (328 feet)
Ethernet 10Base–2	185 meters (607 feet)

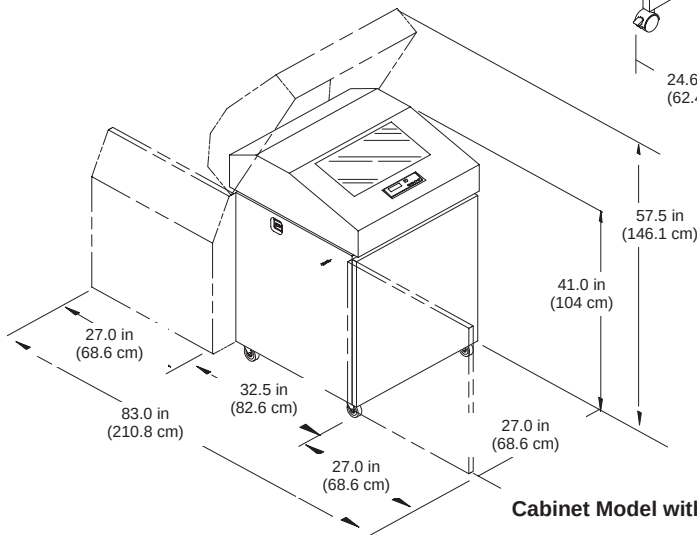
Printer Dimensions



Cabinet Model



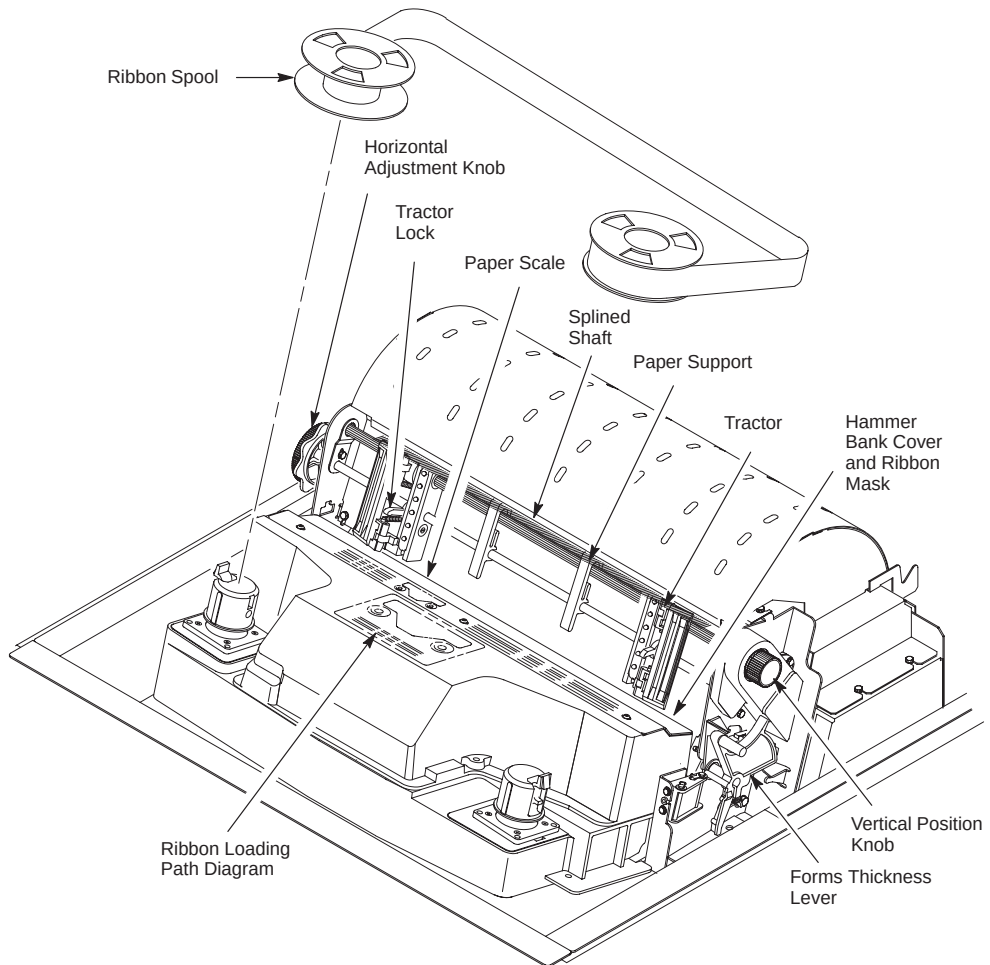
Pedestal Model



Cabinet Model with Stacker

Printer Component Locations

Familiarize yourself with the names and locations of the printer components shown in the following figures before continuing with the rest of the installation procedure.

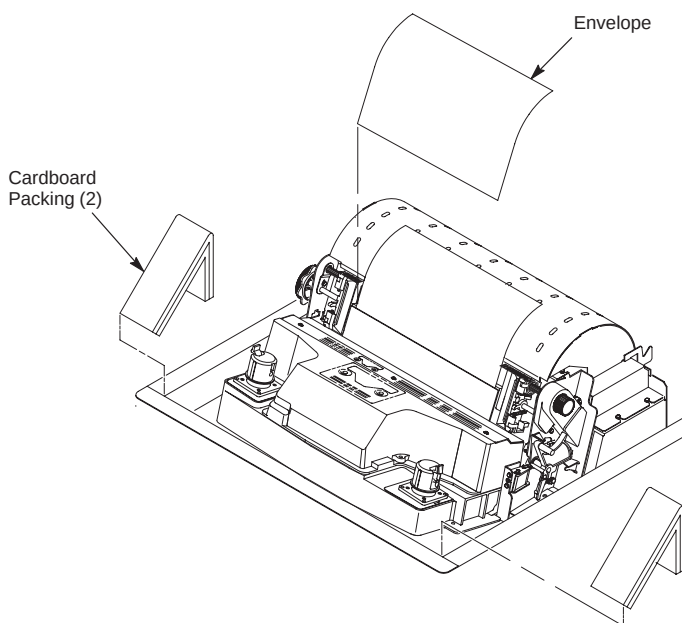


Unpacking the Printer

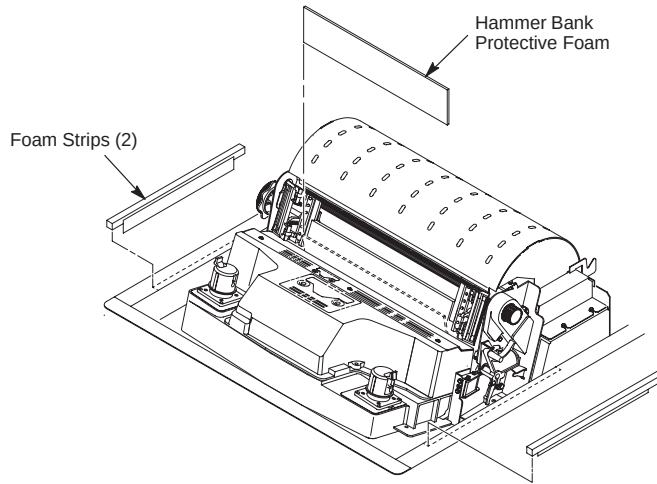
CAUTION *To avoid shipping damage, reinstall the shipping restraints whenever you move or ship the printer.*



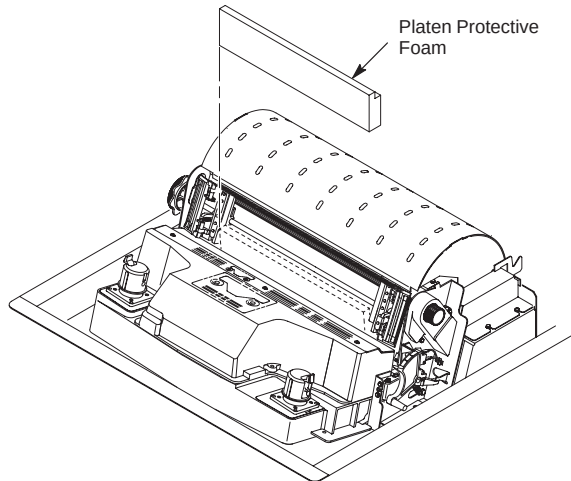
Save the cardboard packing, foam blocks, and bubble wrap along with the other packing materials, in case you need to move the printer later. If it is necessary to move the printer, reinstall the shipping restraints, reversing the steps in this section.



1. Raise the printer cover.
2. Remove the cardboard packing.
3. Open the tractor doors. Push the tractor locks down. Slide the tractors outward as far as they will go. The forms thickness lever should be in the fully open (raised) position.
4. Remove the envelope that contains the sample configuration printout. Store this in the pouch that is attached to the left interior side of the cabinet.

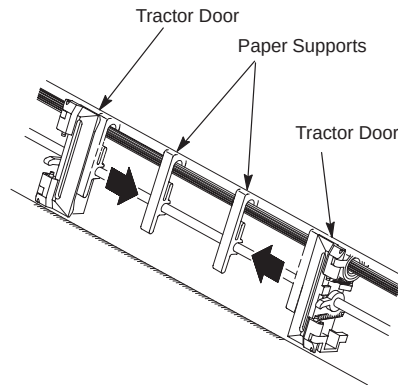


5. Slide the paper supports outward as far as they will go. Lift the hammer bank protective foam and remove it from between the ribbon mask and the platen.
6. Remove the foam strips and the tape securing the foam strips.
7. Rotate the forms thickness lever downward to position "A".



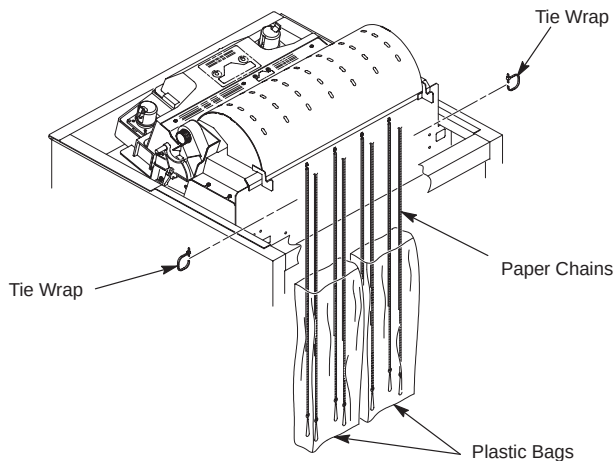
8. Rotate the platen protective foam toward the front of the printer and out from under the support shaft.

Adjusting Paper Supports



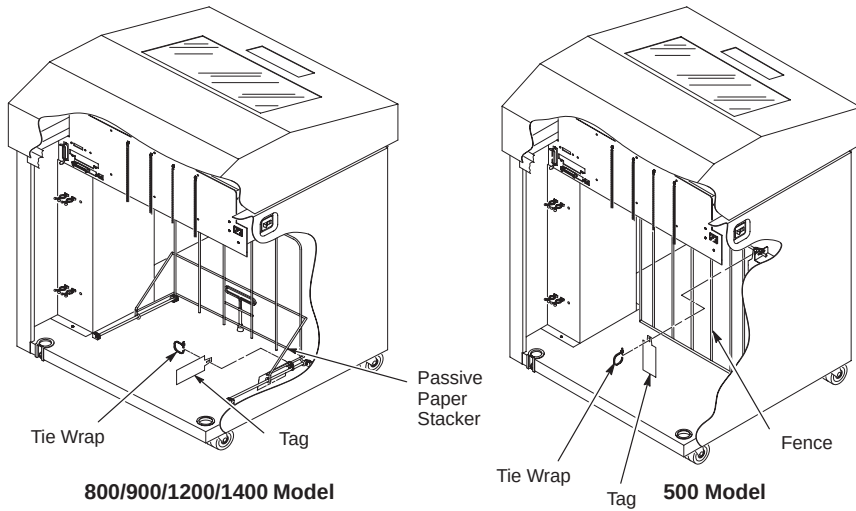
1. Slide the paper supports inward until they are approximately four inches from the tractor door.

Release the Paper Chains (Cabinet Model)



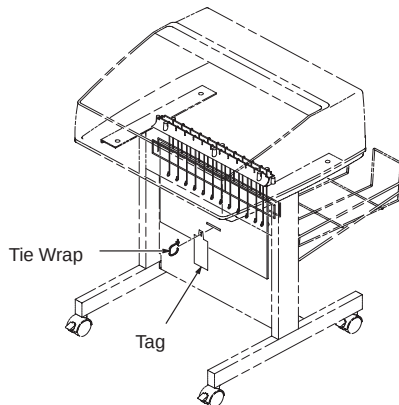
1. Open the rear cabinet door.
2. Cut the tie wraps and release the paper chains from the bags at the top rear of the printer frame. Remove the tie wraps and bags.
3. Make sure each chain hangs freely, with no kinks or knots.

Removing Tags (Cabinet Model)



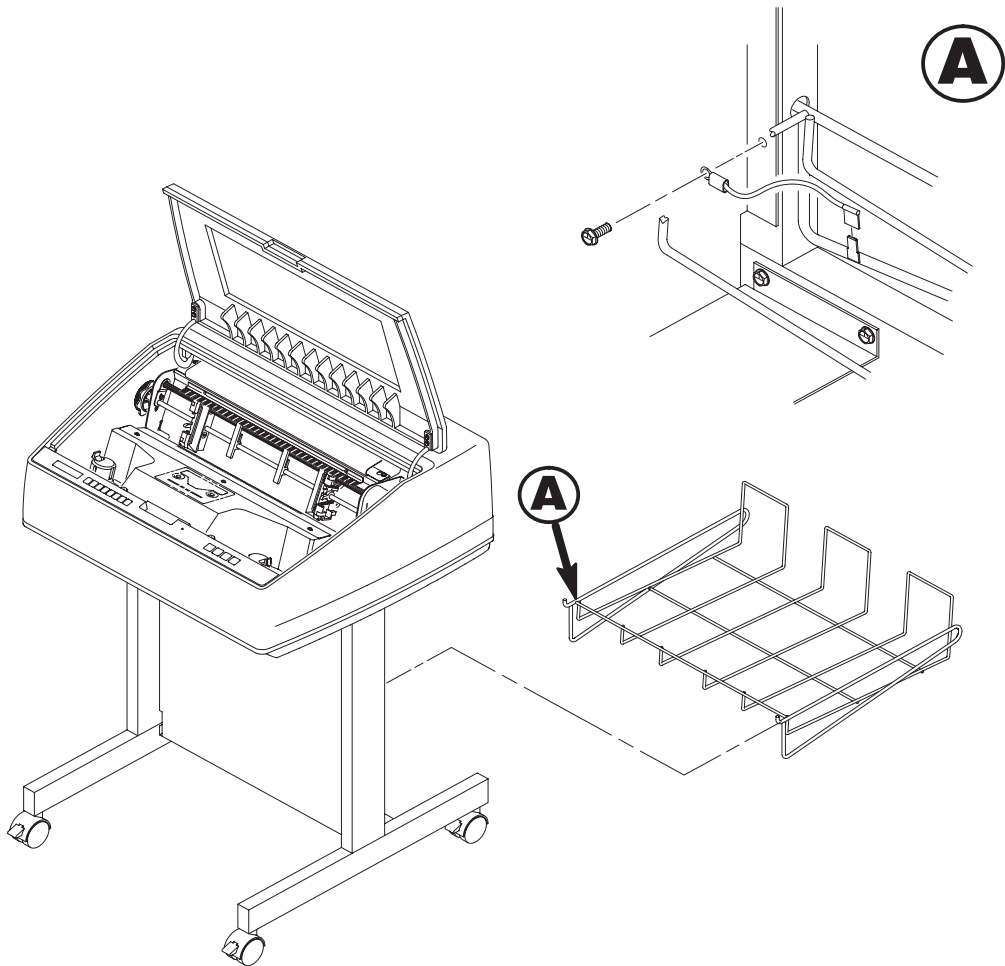
1. Remove the tie wrap attached to the passive stacker paper fence, or if the printer is equipped with a power stacker, the paper fence will be installed. It is marked with a large, red tag.
2. Close the rear cabinet door.

Removing Tags (Pedestal Model)



Remove the tie wrap attached to the output basket. It is marked with a large, red tag.

Attach the Output Basket (Pedestal Model)



1. Place the output basket in the holes in the back of the printer.
2. Screw the ground wire attached to the output basket to the printer.

Remove the Shipping Restraints from the Power Stacker

This section only applies to printers with the power stacker installed.

Special packaging protects the power stacker mechanisms from damage during shipment. This section describes how to remove the shipping restraints before you operate the printer.

Save the packaging materials, since you may need to reinstall them.

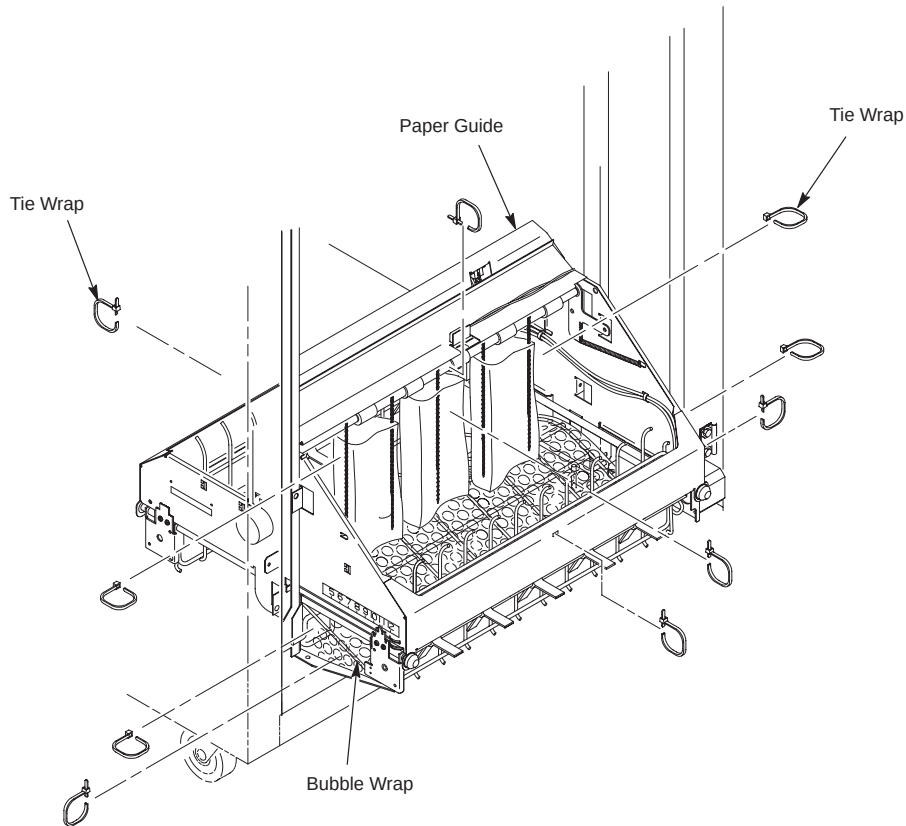
If it is necessary to move the printer, reinstall the shipping restraints. Reverse the steps in this section.

CAUTION



To avoid shipping damage, reinstall the shipping restraints whenever you move or ship the printer.

Removing Shipping Restraints from the Power Stacker

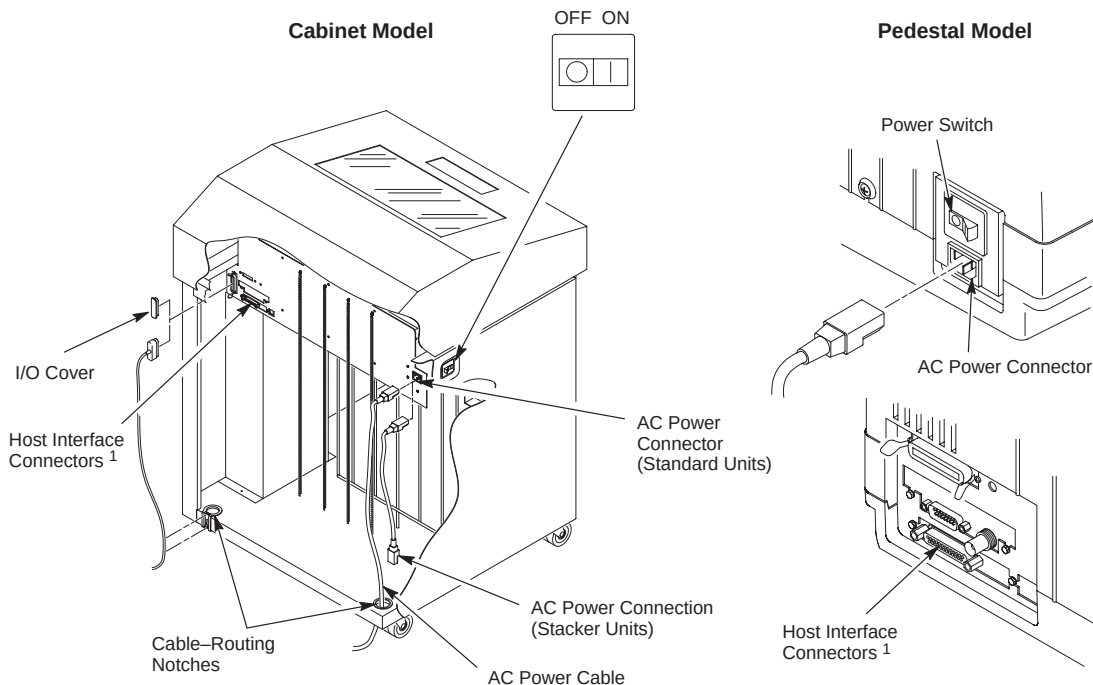


1. Open rear door panel.
2. Remove tie wraps.
3. Raise the paper guide to its highest position by hand.
4. Remove bubble wrap from the paper tent.

Connect the Interface and Power Cords

Before you connect the interface and power cables, verify the voltage source at the printer site conforms to the requirements specified on [page 2-3](#). Make sure the printer power switch is set to OFF.

Interface and Power Cord Connections

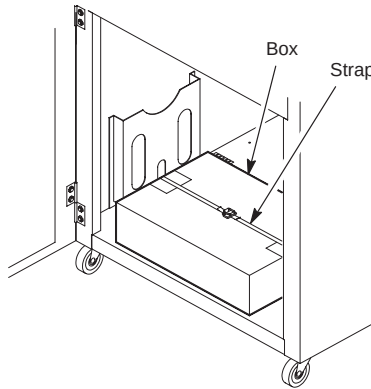


¹ See [page 2-16](#) for illustrations of host interfaces available.

Figure 2-1. Interface and Power Locations

1. Make sure the printer power switch is set to O (Off).
2. Cabinet models only: Open the rear cabinet door, and remove the cover from the I/O connector you have selected (See [Figure 2-1](#)).

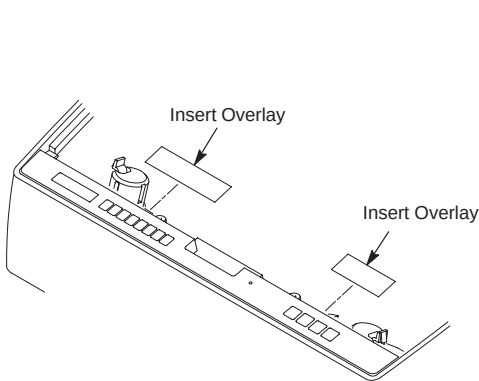
3. Locate the notch in the lower left corner of the back of the cabinet (See [Figure 2-1](#)).
4. Hold the I/O cable below its connector and gently push the cable through the opening in the grommet seated in the notch (See [Figure 2-1](#)).
5. Pull the cable up through the notch until it reaches the I/O plate. Attach the cable connector to the printer interface connector previously selected in step 2 of this section. Secure the cable to the printer using the upper and lower standoffs (See [Figure 2-1](#)).



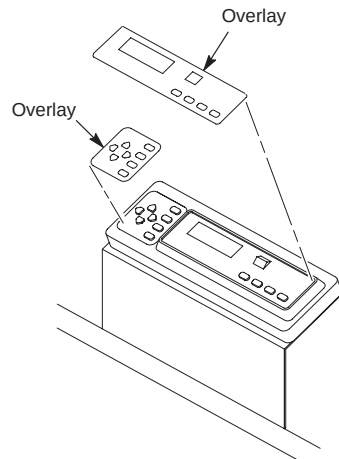
6. Open the cabinet front door and cut the strap that secures the box, which contains the power cord, printer ribbon, control panel overlay labels, and documentation.
7. Open the box and remove the power cord, overlays, and documentation.
8. Guide the power cord up through the hole in the lower right back corner of the cabinet. Thread the power cord inside the bracket where the gas spring is attached (See [Figure 2-1](#)).
9. Plug the power cord into the printer AC power connector, then into the AC power outlet (See [Figure 2-1](#)).

Attach the Control Panel Overlays

1. Choose the overlay labels in the appropriate language.
2. Cabinet Models: Open the printer cover, peel off the protective backing, and press the overlay into place.
3. Pedestal Models: Open the printer cover and insert overlay labels by sliding them behind the control panel assembly in the appropriate place.

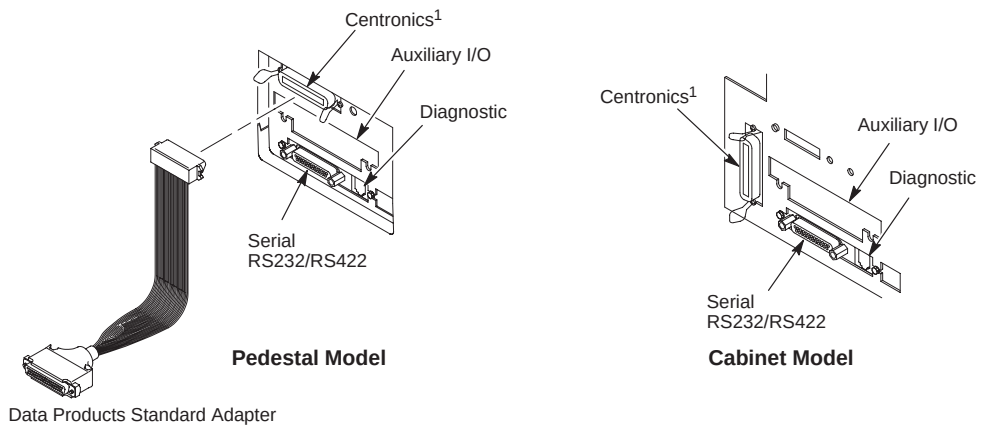


Pedestal Models

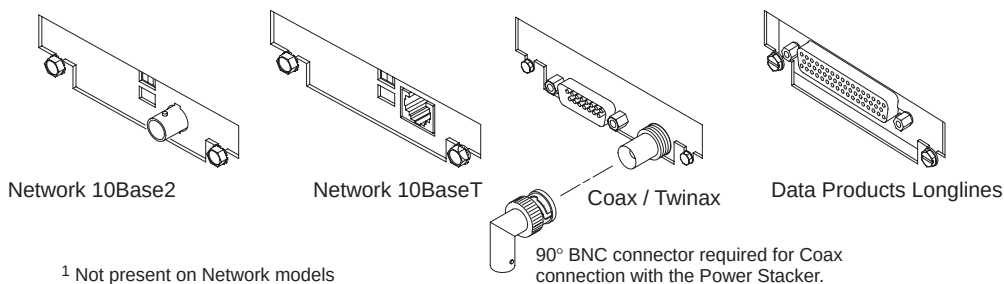


Cabinet Models

Interface Connections



Optional Interfaces for Auxiliary I/O



1. Remove the cover from the I/O connector you have selected.
2. Attach the I/O cable connector to the printer interface connector.

Install the Ribbon

1. Open the printer cover.

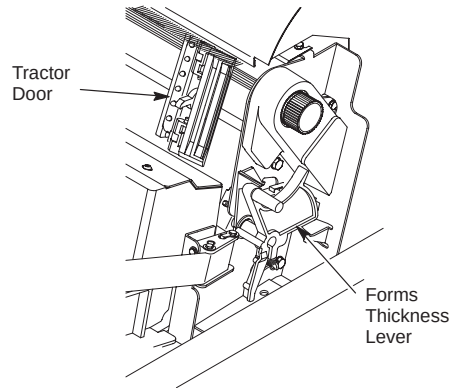
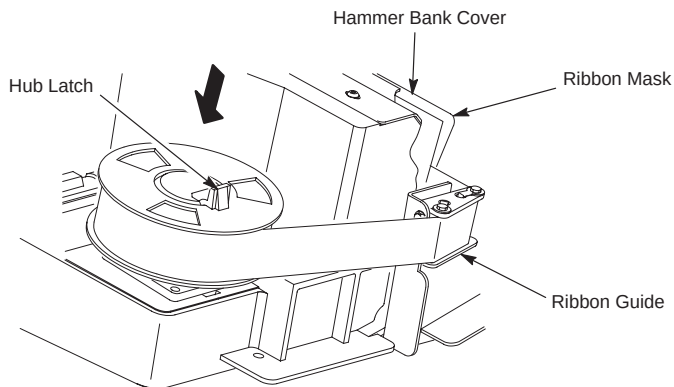
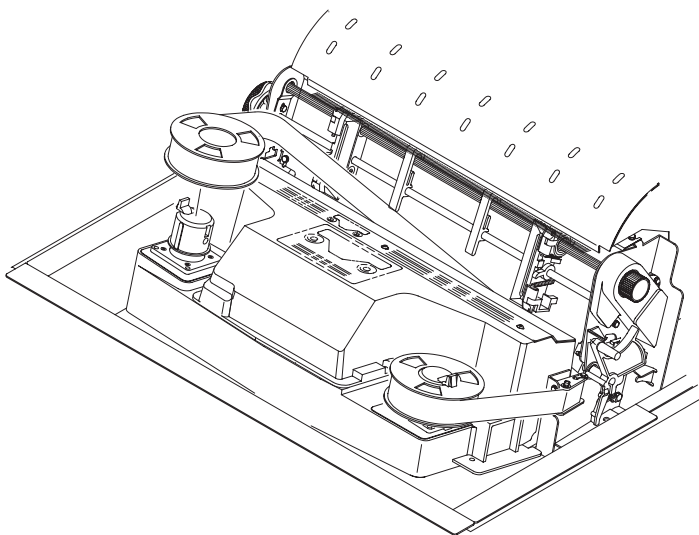


Figure 2-2. Forms Thickness Lever

2. Raise the forms thickness lever as far as it will go.
3. Open the tractor doors.



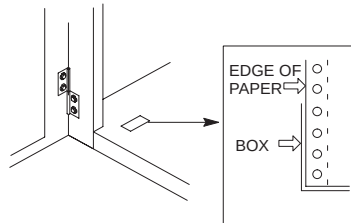
4. Squeeze the right hub latch and place the full spool on the right hub. Be sure the ribbon feeds off the outside of the spool. Press the spool down until the hub latch snaps into place.



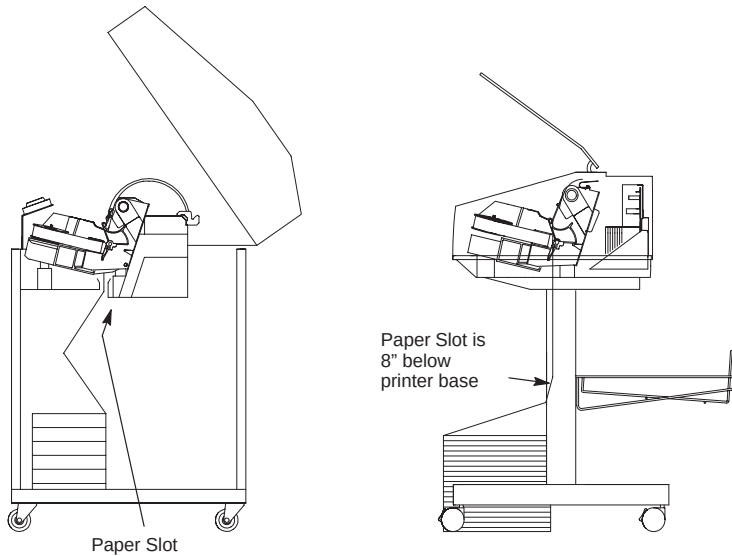
5. Thread the ribbon around the ribbon guide and along the ribbon path. Refer to the ribbon path diagram on the shuttle cover. Be sure to thread the ribbon between the hammer bank cover and the ribbon mask.
6. Place the empty spool on the left hub. Press the spool down until the hub latch snaps into place. Turn the spool by hand to make sure the ribbon tracks correctly in the ribbon path and ribbon guides.

Load the Paper

When you start this procedure, verify that the printer cover is open, the forms thickness lever is raised, and the tractor doors are open. (See [Figure 2-2.](#))

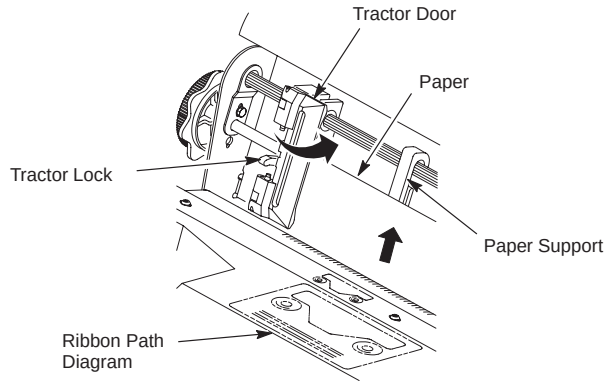


1. For cabinet models, align the paper supply with the label on the floor. Make sure that the paper pulls freely from the box.



2. Feed the paper up through the paper slot. Hold the paper in place with one hand (to prevent it from slipping down through the paper slot) while pulling it through from above with your other hand.

3. Pull the paper above and behind the ribbon mask, which is a silver metal strip with a clear plastic edge protector. Load the paper on the left tractor sprockets and close the tractor door.

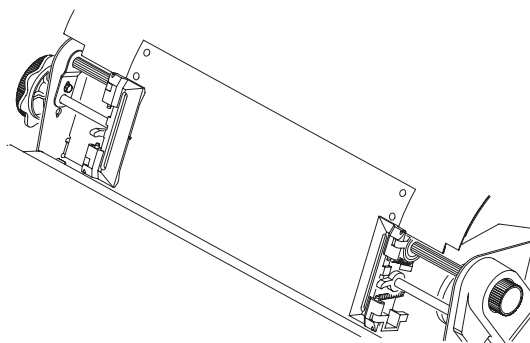


CAUTION

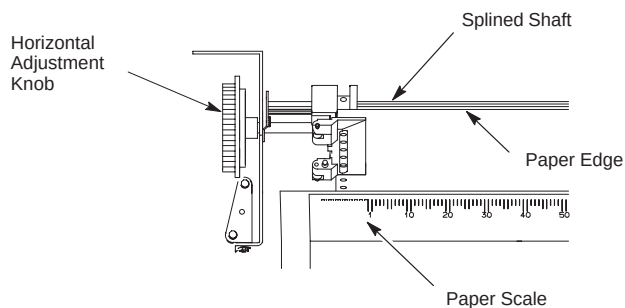


To avoid damage to the printer caused by printing on the platen, always position the left tractor unit directly to the left of the “1” mark on the paper scale.

4. If adjustment is necessary, unlock the left tractor. Slide the tractor until it is directly to the left of the number “1” on the paper scale and lock it. You can also use the paper scale to count columns.
5. Unlock the right tractor.



6. Load the paper onto the sprockets and close the tractor door. Make sure the leading edge of the first sheet of paper is parallel to the tractor splined shaft. If the paper is misaligned, reload it onto the tractor sprockets until its edge is parallel to the splined shaft.
7. Slide the right tractor to remove paper slack or to adjust for various paper widths. Lock the tractor.



8. After both tractors are secured, you may use the horizontal adjustment knob to make fine horizontal paper adjustments .

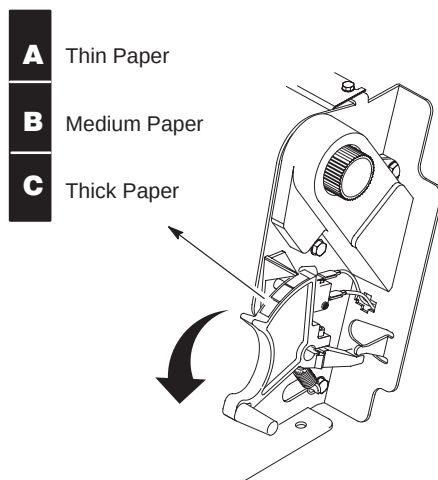


Figure 2–3. Forms Thickness Lever

9. Lower the forms thickness lever. Set it to match the paper thickness.
(The A–B–C scale corresponds approximately to 1–, 3–, and 6–part paper thickness.)

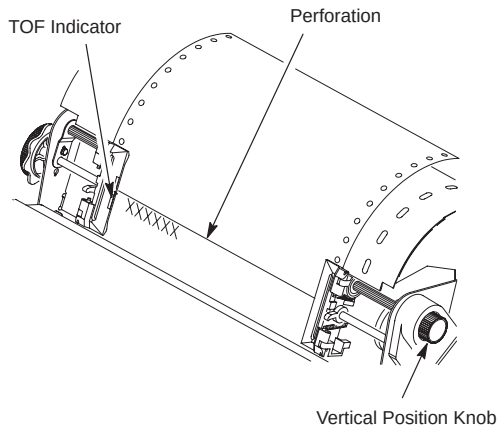
NOTE: Do not set the forms thickness lever too tightly; excessive friction can cause paper jams, ribbon jams with potential for ribbon damage, smeared ink, or wavy print.

10. For pedestal models, manually feed the paper through the rear paper exit by using the vertical position knob.
11. Close the cabinet front door.

Set the Top-of-Form

When you start this procedure, verify that the printer is in online mode, with the printer cover open and the forms thickness lever lowered.

1. Set the power switch to I (On).
2. Press ON LINE to place the printer in offline mode. The LCD will then display "OFFLINE / CONFIG. CONTROL."
3. Press PAPER ADVANCE several times to ensure the paper feeds properly beyond the tractors and over the lower paper path. Ensure the paper folds in the same way in the stacking area as it does in the supply area.



4. Raise the forms thickness lever as far as it will go. (See [Figure 2-3](#).) This allows you to turn the vertical position knob freely in order to align the top-of-form.
5. Locate the TOF indicator. It is the small tab located on both the right and left tractor door.
6. Turn the vertical position knob to align the top of the first print line with the TOF indicator.
7. Lower the forms thickness lever.
8. Press Set TOF.

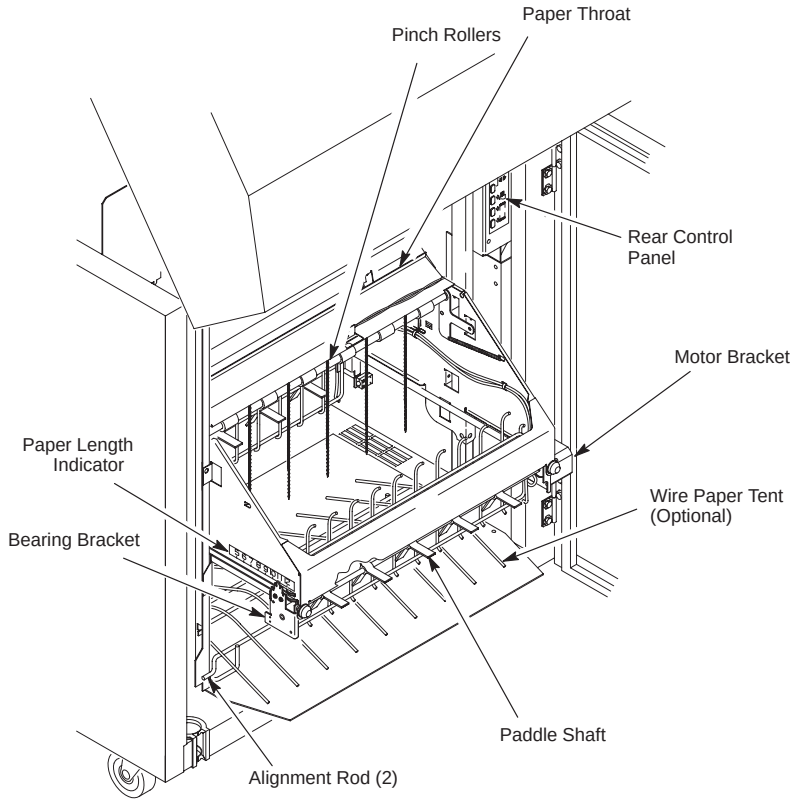
SureStak™ Power Paper Stacker Option

Overview

This section explains how to set up and use the optional power paper stacker. The power stacker mechanically directs the paper from the printer to the paper stack.

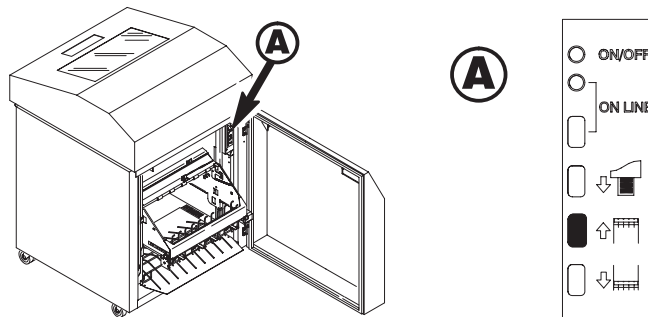
Power Paper Stacker Component Locations

Familiarize yourself with the names and locations of the components shown in the following illustration before operating the paper stacker.

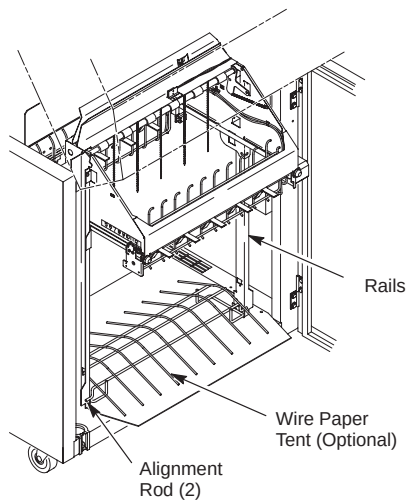


Setting Up the Power Paper Stacker

1. Turn the printer on.

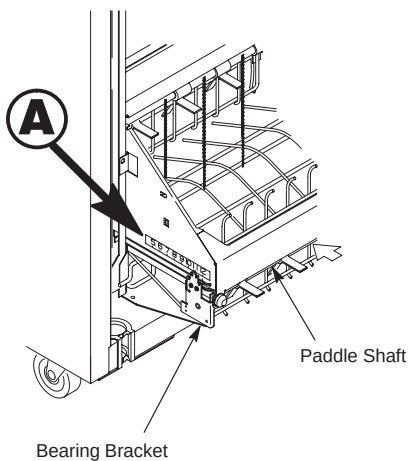
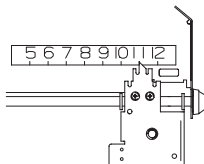


2. Using the rear control panel, press ONLINE to take the printer offline. Press STACKER UP button and wait for the stacker to reach the top of its travel.



3. Make sure the wire paper tent, if provided, is in the base of the stacker with the alignment rods against the paper stacker rails.

A



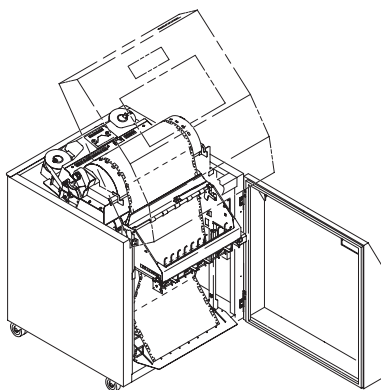
4. Set the desired paper length (5–12 inch range), as follows:

Grasping the paddle shaft, push or pull toward the front or the rear of the printer, setting the desired paper length by aligning indicator notch on the bearing bracket with the paper length indicator.

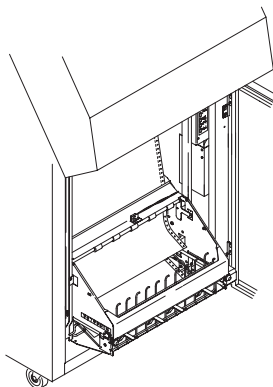
5. Continue with the Loading and Starting the Power Stacker section.

Loading and Starting the Power Stacker

1. Using the rear control panel, press the PAPER ADVANCE key and hand feed the paper in the paper throat. Continue to advance paper until paper reaches the wire tent and there is an excess of 3–5 pages in the stacker. Be certain the paper passes through paper stacker throat.



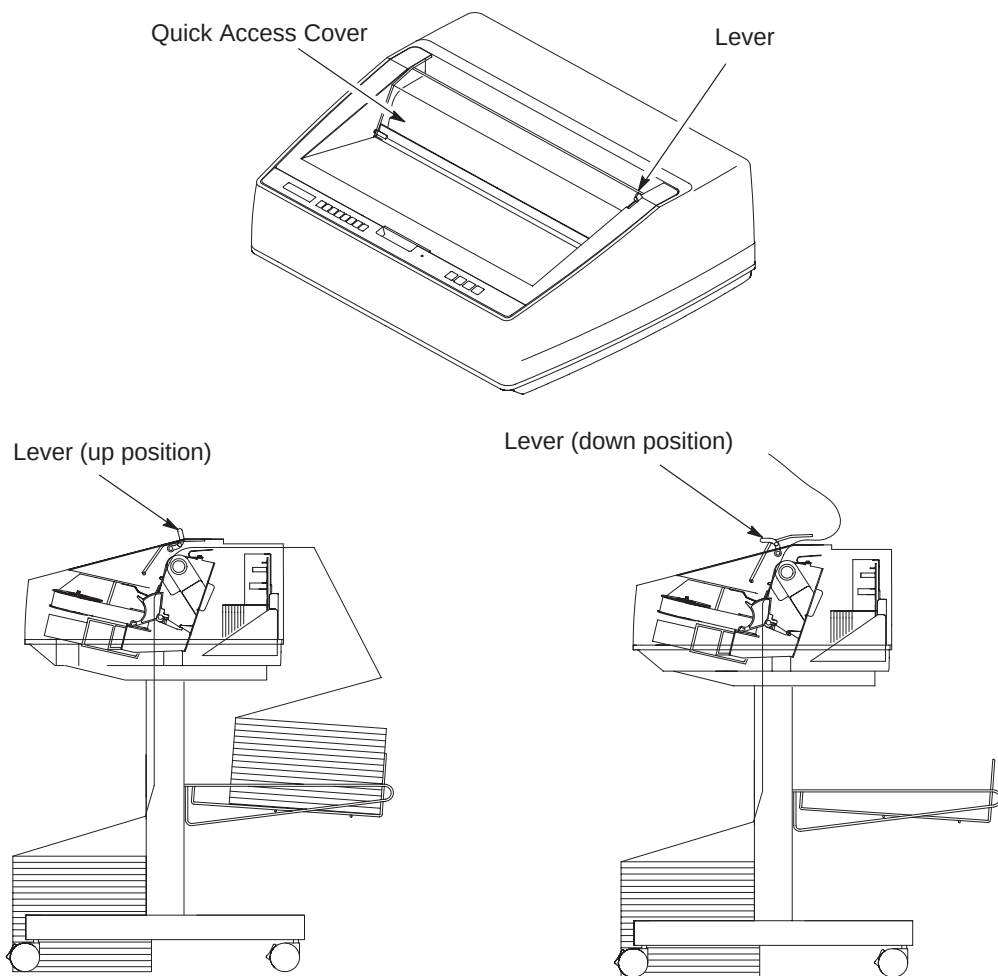
2. Stack the 3–5 sheets of paper on top of the wire paper tent, making sure the paper lies with the natural fold.



3. Press the ON LINE key, from either the front or rear panel, to put the printer in the online state. The stacker frame then returns to its proper position for printing.
4. Check that the paper is still centered between the paper guides
5. Close the rear cabinet door.
6. You are now ready to print.

Quick Access Cover (Pedestal Model Only)

If your pedestal printer is equipped with the quick access cover, you may choose how the paper exits the printer. Pressing the lever up on the quick access cover allows the paper to exit the rear of the printer like a regular pedestal model. Pushing the lever down allows the paper to exit the top of the printer for demand printing.



3 Operating the Printer

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Powering On the Printer

When you power on the printer, the printer executes a self-test. The default power-up state is online. When the self-test completes and the software has initialized successfully, the status indicator lights indicate the printer is online and the default value of the type of emulation you have installed appears in the display.

If there is a fault during the self-test, the status indicator flashes and a specific fault message appears on the display (such as “LOAD PAPER”). The alarm also sounds if it is configured to do so.

Operating Modes

Online — In online mode, the printer can receive and print data sent from the host. Pressing the ON LINE key toggles the printer from offline to online mode. The status indicator is lit in online mode.

Offline — In offline mode, you may perform operator functions, such as loading paper and setting top-of-form. You may also move within the printer configuration menus. Pressing the ON LINE key toggles the printer from online to offline mode. The status indicator is off in offline mode.

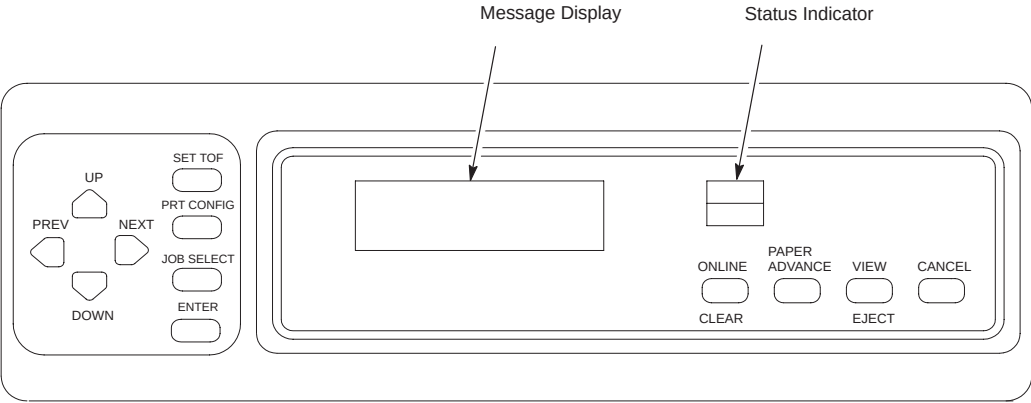
Fault — In fault mode, a fault condition exists that must be cleared before printing can continue. The status indicator flashes, the alarm beeps (if configured to sound), and a descriptive fault message displays.

The current operating mode may be selected via control panel keys, or may result from routine operations such as powering on the printer.

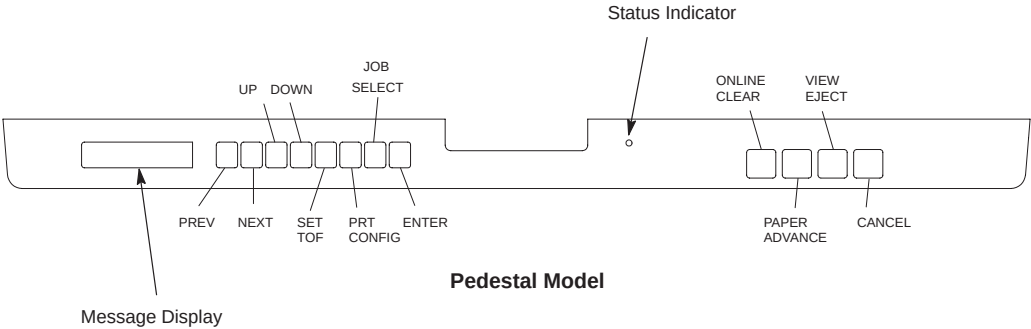
Using the Control Panels

Format Conventions

Messages, keys, and indicators, are shown as they appear on the control panel. Key combinations are indicated with the plus (+) sign. For example, “Press ▲+▼” means to press the ▲ key and the ▼ key at the same time.



Cabinet Model



Pedestal Model

Control Panel Keys

ON LINE / CLEAR – Toggles the printer between online and offline modes. If a fault condition exists, pressing this key will clear a fault message and return the printer from fault mode to offline mode.

NOTE: If the fault condition is not corrected *before* pressing this key, the fault message will reappear when attempting to place the printer online.

PAPER ADVANCE – Performs advance to top of form or line feed, depending on how long the key is pressed. Quickly pressing this key will perform a line feed. Holding the key down for more than one half second will advance the paper to Top-of-Form. In online mode, only an advance to Top-of-Form will occur.

- If there is data in the printer buffer, the data will print and then the paper will move to the next top-of-form.
- In the fault state PAPER ADVANCE does not advance the paper to the next top-of-form; instead, it will slew the paper 11 inches.

VIEW / EJECT – Executes the view or eject function, depending on how long the key is pressed. When the VIEW/EJECT key is pressed quickly the view function is executed. When it is held down for longer than 1/2 second, the eject function is executed.

View Function – Press and release VIEW/EJECT to move the last data printed to the tractor area for viewing. While in the view state, the ▲ or ▼ can be pressed to adjust the paper up or down in 1/72 inch increments. Press VIEW/EJECT a second time to move back to the adjusted print position.

Eject Function – In offline mode, when the Eject Mode is enabled, holding the VIEW/EJECT key down for longer than one half second will invoke the Eject function. The amount of paper advanced is determined by the eject mode selected in the configuration menu: standard, simple tear, and form saver action. See Appendix B for details.

NOTE: Pressing ON LINE also moves the paper back to the adjusted print position and returns the printer to online. If you press PAPER ADVANCE while in view or eject mode, the paper will return to the adjusted print position and then perform the paper advance motion.

Standard Mode – The first press ejects the paper 22 inches. Pressing the key again retracts 22 inches.

Simple Tear Mode – Allows demand printing for specially designed forms.

Form Saver Mode – Allows near demand printing of forms that do not have pre-printed headers.

CANCEL – In offline mode, this key cancels all data in the print buffer (if enabled in the “MAINT/MISC” menu). The print buffer is cleared without printing any of the data and the current paper position is set as the Top-of-Form. If this function is disabled, the CANCEL key will be ignored.

NOTE: Use of this key will cause loss of data.

SET TOF (Top-of-Form) – Sets the top-of-form on the printer. This key is active only when the printer is offline and will not operate if the printer is in a fault condition. The paper moves down to the print position and aligns to the top-of-form.

NOTE: If there is any data in the buffer, the paper will move to the last print position.

PRT CONFIG – In offline mode, prints the current printer configuration. This key requires a confirmation with the ENTER key; pressing any other key will exit from this function.

JOB SELECT – In the offline mode, press JOB SELECT. The display reads “Load Config ” and the name or number of the currently loaded configuration. Press JOB SELECT until the configuration you want to load displays. Press ENTER and “Loading Saved Configuration” displays. The configuration is loaded into memory. Press ON LINE twice to return to online mode.

ENTER – Selects the currently displayed option value as the active value. When the display shows the desired configuration value, press and release to select that value as the active value. An asterisk (*) appears next to the active value on the display. ENTER also starts and stops printer tests and generates a configuration printout. Press ENTER to start a printer test or configuration printout. Press again to stop the printer test.

NOTE: The ENTER key must be unlocked in order to function.

UP or DOWN (▲ or ▼) – Moves up and down between levels in the configuration menus and makes vertical forms adjustment. After pressing VIEW, press ▲ or ▼ to adjust the paper up or down in 1/72 inch increments for fine vertical forms alignment.

UP + DOWN (▲ + ▼) – Locks and unlocks the ENTER key.

NOTE: The ENTER key lock and unlock function can be configured to be other than ▲+▼ (See [page 4–93](#)).

PREV or NEXT (◀ or ▶) – Moves between the options on the current level of configuration menu. In the configuration menu, press ◀ to scroll backward or press ▶ to scroll forward through the menu selections on the same level.

PREV + NEXT (◀ + ▶) When both keys are pressed simultaneously, the printer will reset to the power-up configuration and reset its internal state.

▲ + ON LINE (IPDS Emulation Only)

In offline mode, press ▲ + ON LINE. If there is data in the IPDS printer buffer, the printer will be placed in online mode, print one page, and return to the offline mode. This action can be repeated until the end of a print job. Each time it prints only one page. If no data are in the IPDS printer buffer, the printer will be placed in online mode.

In the fault state, ▲ + ON LINE does not work.

▲ + PAPER ADVANCE (IPDS Emulation Only)

In offline mode, press ▲ + PAPER ADVANCE. If you release the PAPER ADVANCE key, the printer will perform a reverse linefeed. If you continue to press both, the printer will move to the previous top-of-form position. If there is IPDS data in the printer buffer, it will not print the data.

In the fault state, ▲ + PAPER ADVANCE does not work.

▲ + VIEW (IPDS Emulation Only)

In offline mode, press ▲ + VIEW. If there is data in the IPDS printer buffer, the printer will be placed in online mode, print one line, and return to offline mode. This action can be repeated until the end of the job. This function prints only one line of text. If the data is not text, only 1/6 inch prints. If no data is in the IPDS printer buffer, the printer will be placed in online mode for one second and then return to offline mode. If there is no data in the buffer, the printer will go online and remain online until a job is released, it then returns to offline mode.

In the fault state, ▲ + VIEW does not work.

Reloading Paper

Follow this procedure when “LOAD PAPER” displays. (This message occurs when the last sheet of paper passes through the paper slot.) This procedure reloads paper without removing the last sheet of the old paper supply. This action retains the current top of form setting.

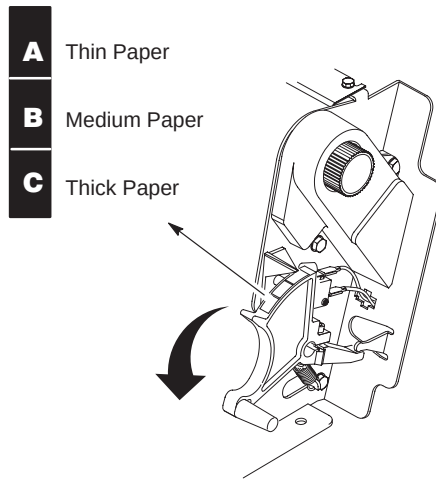


Figure 3-1. Forms Thickness Lever

1. Raise the printer cover. Raise the forms thickness lever as far as it will go. Press CLEAR to turn off the alarm. Do not open the tractor doors or remove the existing paper.
2. Open the cabinet front door. Align the paper supply with the label on the floor. Ensure that the paper pulls freely from the box.

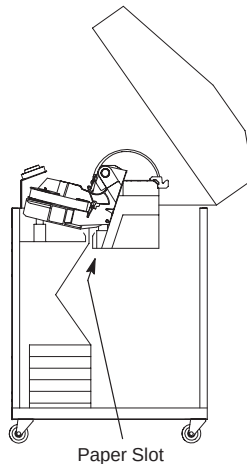
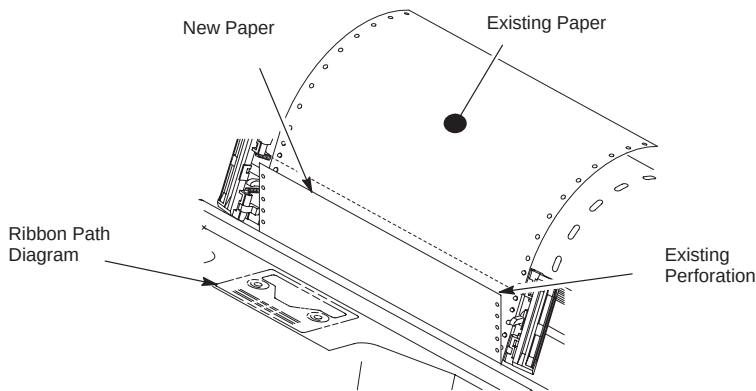


Figure 3–2. Paper Slot Location

3. Locate the paper slot inside the cabinet and feed the paper up through the slot. It may be easier to feed one corner of the new paper up through the slot first. When this corner can be grasped from the top, rotate the paper back to the normal position. If necessary, gently press the existing paper back.

NOTE: If you are unable to load the new paper over the existing paper in step 3, this procedure will not work. Unload paper completely perform the normal load paper procedure on [page 2–19](#).

4. Hold the paper to prevent it from slipping down and through the paper slot.
5. Pull the new paper above and behind the ribbon mask, but in front of the existing paper. The ribbon mask location is shown on the ribbon path diagram. If necessary, gently press the existing paper back.
6. Align the top edge of the new paper with the top perforation of the existing paper.



7. Load the new paper over the existing paper.
Open and load the tractors one at a time to prevent the paper from slipping.

NOTE: Make sure that the top edge of the new paper lines up with the top horizontal perforation of the last page.
8. Lower the forms thickness lever.
9. Press CLEAR to clear the “LOAD PAPER” fault message from the display.
10. Press ON LINE to place the printer in online mode and resume printing.
11. Make sure the paper stacks properly.
12. On cabinet models: Open the cabinet rear door. Make sure the paper is aligned with the label in the output area (inside the cabinet). Close the front and rear doors.
13. Perform the following steps to test the printer:
 - a. Make sure that the printer top cover is open and the forms thickness lever is lowered.
 - b. Press ON LINE. (The printer must first be offline to test the printer.)
 - c. Press UP + DOWN (▲ + ▼) (Allows configuration changes).
 - d. Press PREV (◀) until OFFLINE “DIAGNOSTICS” appears on the display.
 - e. Press DOWN (▼) until DIAGNOSTICS “Printer Tests” appears on the display.

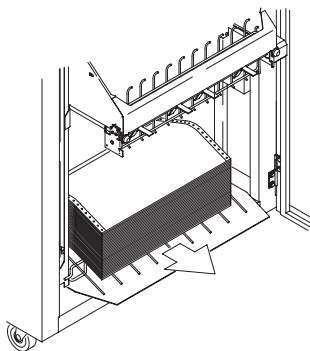
- f. Press DOWN (▼) until Printer Tests “Shift Recycle” appears on the display.
- g. To start test, press ENTER.
- h. To stop test, press ENTER.
- i. Press UP + DOWN (▲ + ▼) until ENTER SWITCH “LOCKED” appears on the display.
- j. Examine the print quality. The characters should be fully formed and of uniform density.
- k. If the print quality is good, close the printer cover; press ON LINE to enable printing.

NOTE: The ENTER key lock and unlock function can be configured to be other than ▲+▼ (See [page 4-93](#)).

Unloading Paper from the Power Stacker

Removing Paper from the Printer:

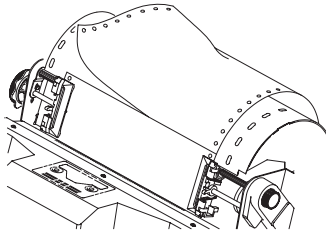
1. Unload paper from the print mechanism.
2. Open the rear cabinet door.
3. Using the rear control panel, press STACKER UP and wait for the stacker to reach the top of its travel.
4. Remove the paper from the rear of the printer.



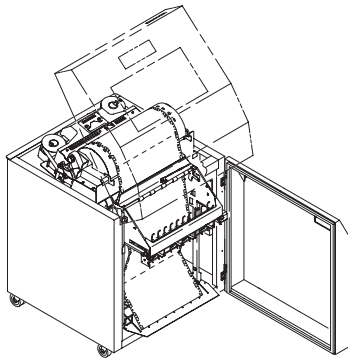
5. Close the rear cabinet door.

Removing Paper from the Power Stacker Only:

1. Open the rear cabinet door.
2. Using the rear control panel, press ON LINE to take the printer offline
3. Press STACKER UP and wait for the stacker to reach the top of its travel.
4. Open the printer lid.



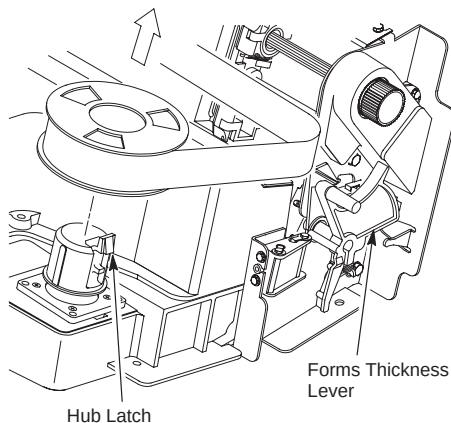
5. Tear the paper off at the first perforation above the tractors and let the paper fall back through the open power stacker throat.



6. From the rear of the printer, making sure the paper lies with its natural folds, lay the paper on top of the paper stack.
7. Remove the paper from the rear of the printer.
8. Close the rear door and the top cover.

Replacing the Ribbon

1. Press ON LINE to place the printer in offline mode.
2. Open the printer cover
3. Remove the old ribbon:
 - a. Raise the forms thickness lever as far as it will go.
 - b. Press in on the hub latches and lift the ribbon spools off the hubs. Lift the ribbon out of the ribbon path.
4. Discard the old ribbon.
5. If necessary, clean the interior of the printer. (See [page 6-2](#).)
6. Install the new ribbon:
 - a. With the ribbon to the outside, place the full spool on the right hub. Press down on the spool until the hub latch snaps in place.



- b. Thread the ribbon around the ribbon guide and along the ribbon path. Refer to the ribbon path diagram on the shuttle cover.
 - c. Place the empty spool on the left hub. Press down on the spool until the hub latch snaps into place. Hand turn the right spool to make sure the ribbon tracks correctly in the path and ribbon guides.

7. Lower the forms thickness lever. Set it to match the paper thickness you are using. (See [Figure 3-1](#).)
8. Close the printer cover.
9. Press ON LINE to return the printer to online mode.

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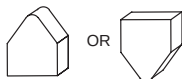
Navigating the Menu

To manipulate configurations it is important to understand how to navigate through the menus. Review the following instructions before you begin working with the printer.

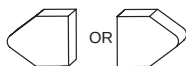
First, you must be offline to move within the menus.



Press to toggle between ONLINE and OFFLINE.



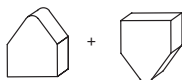
Press to move up or down through the menus.



Press to scroll through the available choices.



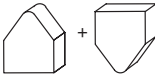
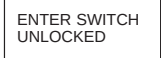
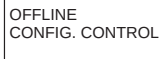
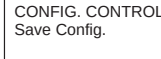
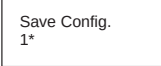
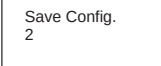
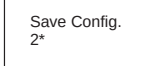
Press to confirm selection.



Press to lock and unlock the ENTER key. The ENTER key lock and unlock function can be configured to be other than ▲+▼ (See [page 4-93](#)).

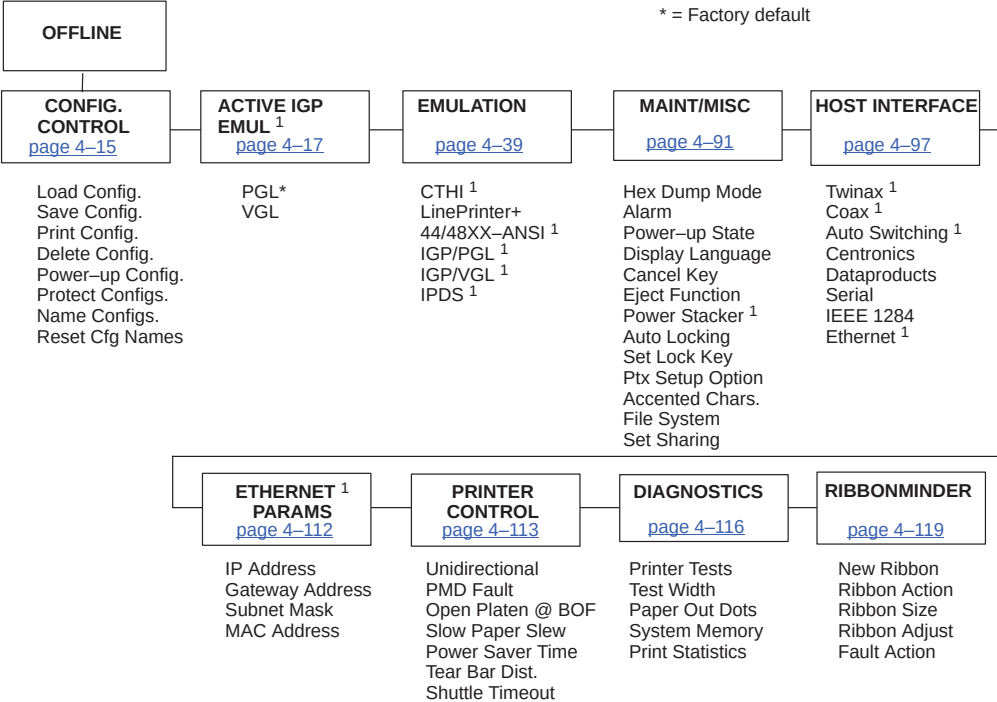
When the printer is online, the LCD displays ONLINE and the type of emulation on the second line. If the active interface Auto Switching, the second line of the LCD displays also shows the active port together with the type of emulation.

To experiment with navigating the menus, follow the example on the next page to learn how save a configuration.

Step	Press	LCD	Notes
1.	If you are already in the configuration menu, go to step 5.		
2.	Press: 		Allows you to make configuration changes.
3.	 + 	 	
4.			
5.	 UNTIL		Press until a desired number (1–8) displays.
6.			
7.	 OR 		
8.			The configuration is now saved in memory. (In this case, config. 2.)
9.	 UNTIL		
10.	 + 		Locks the ENTER key.
11.	Close the printer cover. The printer is ready for operation.		

NOTE: Once you change active emulations, any changes to the previously selected emulation will be gone unless they have been saved.

Configuration Main Menu



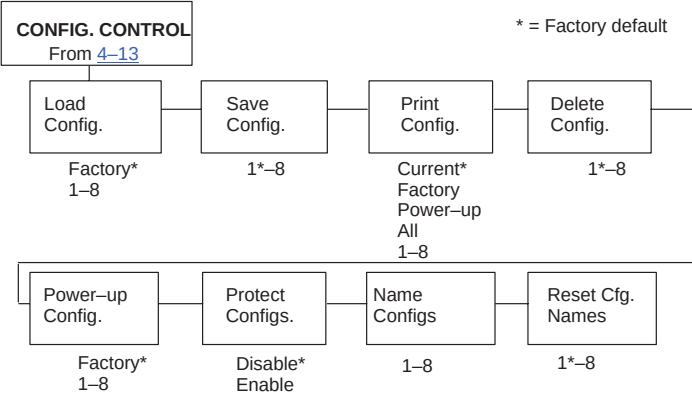
¹ If installed.

Brief descriptions follow for the first-level configuration menu options:

- **CONFIG. CONTROL** – These options allow you to save, print, load, delete, name, and reset entire sets of configuration parameters.
- **ACTIVE IGP EMUL** – This menu allows you to select the PGL or VGL emulation from the menu if IGP is installed.
- **EMULATION** – This menu allows you to select the LinePrinter Plus emulation as the operating emulation for your printer. If the CTHI, IPDS, ANSI, IGP/PGL or IGP/VGL optional upgrade is installed, then Coax, Twinax, IPDS, ANSI, IGP/PGL or IGP/VGL will be the active emulation.

- **MAINT / MISC** – These options provide miscellaneous functions, such as printing a hex dump, selecting a display language, setting the lock key, and choosing whether the printer will power up in offline or online mode.
- **HOST INTERFACE** – These options allow you to select either the Serial RS–232, Serial RS–422, Centronics parallel, Dataproducts parallel, Ethernet, IEEE 1284 parallel, Auto Switching, Coax or Twinax interface for the printer (which must match the interface cabling you installed while setting up your printer, described in Chapter 2). This menu also allows you to configure several parameters for each interface.
- **ETHERNET PARAMS** – This option allows you to view and change the IP Address, Gateway Address, and Subnet Mask. The MAC Address may also be viewed.
- **PRINTER CONTROL** – These options allow you to select several operating parameters for the printer, such as the speed at which paper will advance when slewing.
- **DIAGNOSTICS** – These options include the diagnostic tests, system memory, and statistics of the printer.
- **RIBBONMINDER™** – The options in this submenu allow you to enable the RibbonMinder feature and set its parameters.

CONFIG. CONTROL Menu



Load Config.

The printer can store numerous configurations in memory. This parameter allows you to select and load a specific configuration. The factory default configuration cannot be changed. It is always available for loading.

Save Config.

This option allows you to save up to eight unique configurations to meet different print job requirements. This eliminates the need to change the parameter settings for each new job. The configurations are stored in memory—they will not be lost if you turn off the printer. If the Protect Configs. parameter is enabled, the new configuration will not be saved unless the existing configuration has been deleted.

Print Config.

This option is used to output a listing of various stored printer configurations. It is recommended you store a printout of the configurations in a safe place for quick referral.

Delete Config.

You can delete one or all of your eight customized configurations.

Power-Up Config.

You can specify which of the nine configurations (Factory or 1-8) will be the power-up configuration.

Protect Configs.

You can specify whether or not a new configuration should overwrite an existing configuration when you activate the Save Configs. parameter. When disabled (default), the new configuration will overwrite the existing configuration. When enabled, the new configuration will *not* overwrite the existing configuration, and the message “CONFIG. EXISTS / Delete First” displays.

Name Configs.

You can specify a 15 character name which can be used to refer to a configuration. The name you enter for a configuration will be used in the Load Config., Save Config., Print Config., Delete Config., and Power-Up Config. menus. The configuration names are special and apply to the printer rather than a particular configuration. They are not saved as any part of a configuration, but stored separately in NVRAM. The names can only be cleared by using the Reset Cfg Names menu.

When you move into the Name Config menu, the top line of the display shows the current configuration name string of that configuration. The second line of the display is initially the same as the top line. You can modify the second line of the display without affecting the top line until the ENTER key is pressed, selecting the modified name as the current selection.

If you press the NEXT or PREV (◀ or ▶) keys, the cursor will move to the next or previous character, wrapping to the first or last character. The cursor indicates the character in the string that will be modified when you press the UP or DOWN (▲ or ▼) keys. At this point, the UP and DOWN (▲ or ▼) keys cycle through the values available for that character at the cursor location. To select another character to modify, press the PREV or NEXT (◀ or ▶) key. Press the ENTER key at any time to save the configuration name string as shown on the front panel and move out of this menu. You can press any key other than the ENTER key to move up and out of this menu. The configuration name string will revert to the last saved value.

Reset Cfg Name

You can reset specific configuration names back to the default value of the configuration number.

ACTIVE IGP EMUL Menu

ACTIVE IGP EMUL

(From [4-13](#))

IGP/PGL*
IGP/VGL

* = Factory default

This ACTIVE IGP EMUL function allows the user to activate either the PGL or the VGL emulation. There are two methods for selecting the desired emulation. The first is by selecting the emulation directly from the printer menu. The second is by sending a host command which will switch the emulation automatically. To switch from VGL mode to PGL mode, you must be in Graphic Mode.

The command to switch to PGL is SFCC I EMUL, PGL. To switch to VGL from PGL, you must be in Normal Mode. The command to switch to VGL is SFCC EMULATION; VGL.

When changing from one IGP emulation to the other, the printer will load the saved configuration. Thus, any setting performed before selecting those interfaces and not saved in NVRAM will be lost.

IMPORTANT *In order to configure an IGP emulation, the IGP emulation must be selected in the ACTIVE IGP EMUL menu.*
! *The IGP emulation that is not selected will not appear in the emulation menu.*

IGP Configurations – PGL

Features

The PGL emulation is the software based Intelligent Graphics Processor (IGP) for the line matrix family of Printronix printers. It is based upon, and is compatible with, the Printronix IGP–100/200/400 board using the Printronix Graphics Language (PGL). The IGP graphics processing features are detailed below.

On–Line Form and Label Generation makes it easy to create forms or labels with a “preprinted” look for each application. IGP programs control all graphic functions, dramatically reducing host computer programming and processing time.

Graphic capabilities include boxes, vertical and horizontal lines with user–selectable thickness, logos, and special alphanumeric print features. Forms and graphic designs can be duplicated horizontally and vertically.

Alphanumeric data can appear as prepositioned “fixed” information (entered when the form is created), be overlayed onto the form (positioned in a specific location after the form is created), or may be dynamically merged with the form.

Selectable Bar Codes provide you with the appropriate bar code for your application using standard wide–to–narrow ratios. A wide selection of bar codes are available: Code 39, Interleaved 2 of 5, UPC–A, UPC–E, MSI A through D, Code 128 Subset A, B, and C, EAN/UCC–128, EAN, EAN 13, POSTNET, POSTBAR, ROYAL MAIL, and PDF417. UPC and EAN bar codes can specify add–on data.

Expanded and Compressed Character Print attract attention where needed. Alphanumeric height and width are controlled independently for a wide range of character sizes up to 113 times the standard character size (up to 11.3 inches wide and tall). Compressed print sizes of 12, 13, 15, 17, and 20 characters per inch (cpi) are available.

Rotated Alphanumerics permit new concepts in form design. Normal, expanded, and compressed character strings can be rotated 90 degrees clockwise or counterclockwise, or they can be printed upside down.

Logos are created using alphanumeric commands and add many print and shading features for a “customized” appearance to forms, reports, and labels.

Reversed Print permits highlighting and contrasting by printing white characters on a dark background.

Automatic Increment/Decrement Capability allows batch form processing. You can identify individual numeric and bar code data fields, which includes automatic increment or decrement functions.

Scaling Capability permits graphic elements, such as corners or boxes, to retain their physical shapes and sizes when printed in a horizontal and vertical density other than the base density of 60 x 72 dpi.

Standard Character Sets

Standard Character Sets provide you with many different character sets. The Based on the Multinational Character Set, you may create your own character sets using characters defined and stored in flash memory.

Configuring the Emulations with the Control Panel

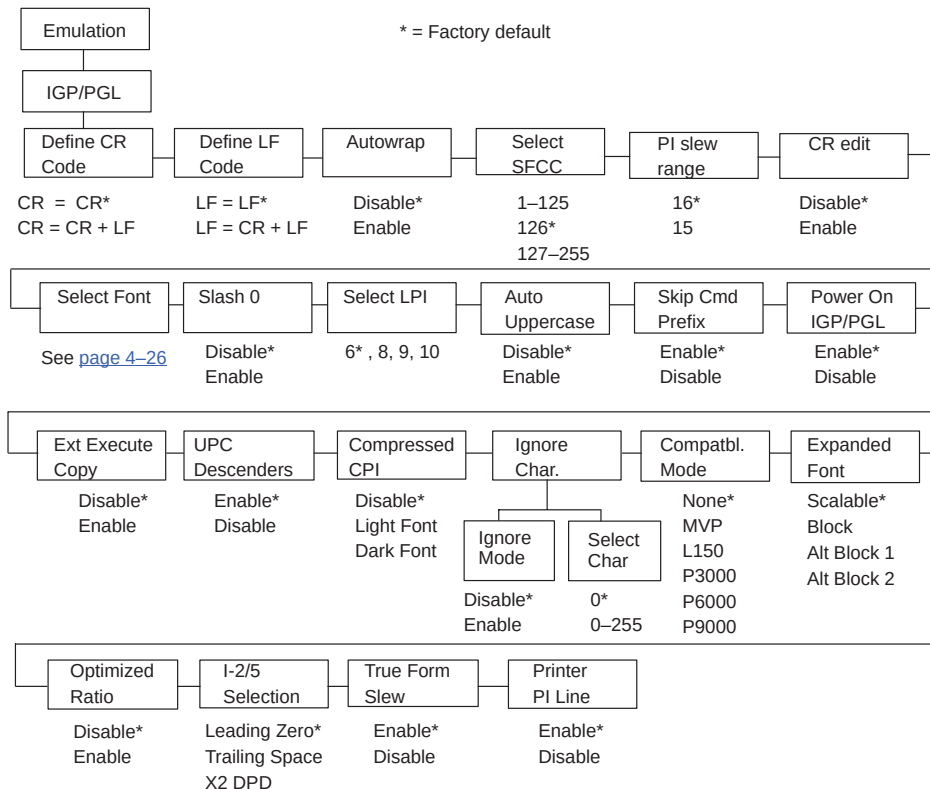
You can select PGL default parameters directly from the control panel, or by control codes as explained in the [Programmer's Reference Manual](#).

Pressing an invalid key to enter a parameter value may move you to another level in the configuration or exit the configuration menu completely.

IMPORTANT ***BEFORE you reconfigure the PGL, print a configuration sheet to see all of the current settings.***

!

The IGP/PGL Emulation Submenu



Define CR Code (Carriage Return)

This parameter forces the printer to insert an automatic Line Feed code into the data stream whenever a Carriage Return code occurs. This is to be used only if the host computer does not send Line Feeds to the printer.

- **CR = CR.** Does not perform a line feed. The next print position will be print position 1 of the current line.
- **CR = CR + LF.** Performs an automatic line feed. The next print position will be print position 1 of the next line.

Define LF Code (Line Feed)

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Line Feed code occurs. This can be used in most installations, but it is required if the host computer does not send Carriage Returns to the printer.

- **LF = LF.** Does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- **LF = CR + LF.** Performs an automatic carriage return. The next print position will be print position 1 of the next line.

Autowrap

This parameter determines if text will wrap to the next line when the line of text exceeds the right margin.

- **Disable.** Truncates the text beyond the right margin until a CR or CR + LF is received.
- **Enable.** Automatically inserts a CR + LF after a full print line.

Select SFCC

You can specify which hex code (1–255) will be used as the Special Function Control Character (SFCC). The factory default setting is 126. The SFCC denotes that the following data is a PGL command.

PI Slew Range

You can specify how many lines the paper will feed.

- **15.** A paper slew of 1–15 will move 1–15 lines. A paper slew of 0 will move 1 line.
- **16.** A paper slew of 0–15 will move 1–16 lines.

CR Edit

This parameter determines if a carriage return will be followed by a line feed.

- **Disable.** The printer ignores all carriage returns that are not followed by line feeds.
- **Enable.** The printer processes all carriage returns, even for those that are not followed by line feeds.

Select Font

Select Font specifies which language is currently selected for use with the PGL. Refer to [page 4–26](#) for available selections.

Slash 0

This parameter allows you to print the numeral '0' with or without the slash. This option applies to all character sets except OCR A and OCR B.

- **Disable.** Zero is printed without a slash.
- **Enable.** Zero is printed with a slash.

Select LPI

This is the number of lines to be printed per inch. For example, at 6 lpi there is 1/6–inch from the top of one print line to the top of the next print line.

Auto Uppercase

This parameter enables the printer to print text in all uppercase when using the ALPHA command.

- **Disable.** The printer will print text in upper and lowercase.
- **Enable.** The printer will print text in uppercase only.

Skip Command Prefix

This parameter determines if a data string before a PGL command will be ignored.

- **Disable.** The printer will print any data before an IGP command.
- **Enable.** The printer ignores all text before an IGP command.

Power On IGP/PGL

You can set the IGP feature so that it is enabled or disabled when the printer is powered on.

- **Disable.** The PGL is disabled when the printer is powered on. (The PGL feature is initialized to the Quiet mode.)
- **Enable.** The PGL is enabled when the printer is powered on. (The PGL feature is initialized in the Normal mode.)

Extended Execute Copy

- **Disable.** Dynamic data, overlay data, etc. are not allowed if the optional Form Count parameter (number of forms to print) is specified as part of the Execute command. (This setting is IGP-100 compatible.)
- **Enable.** Dynamic data, overlay data, etc. are allowed within a form in which the Form Count parameter is specified in the Execute command. In this case, the exact same form (with identical dynamic data, etc.) is printed for whatever the Form Count is. However, incremental data is *not* incremented since the page that is printing is exactly the same. Also, each form is printed on a separate page.

UPC Descenders

This parameter allows you to print bar code descenders when human readable data is not presented in the UPC/EAN bar codes.

- **Disable.** UPC/EAN bar codes are printed without descenders if there is no human readable data.
- **Enable.** UPC/EAN bar codes are printed with descenders, even if there is no human readable data.

Compressed CPI

This parameter allows you to choose a compressed character (60% shorter) for 17 or 20 CPI instead of the normal height character.

- **Disable.** The PGL does not use compressed 17 or 20 CPI font.
- **Light Font.** Uses the standard compressed 17 or 20 CPI font.
- **Dark Font.** Uses a darker compressed 17 or 20 CPI font compatible with the IGP-X00 printers.

Ignore Character

Ignore Mode

This parameter instructs the PGL to ignore the character selected under the Select Character menu.

- **Disable.** The PGL does not ignore any characters.
- **Enable.** The PGL ignores the characters selected under the Selected Character menu.

Select Character

This instructs the PGL which character to ignore from the host.

Compatibility Mode

This option instructs the PGL to behave similarly to older versions of the IGP with respect to certain commands.

All new users with new applications should select the “None” option. Selecting this mode insures the printer will behave as described in this manual.

When replacing an older product operating with an existing application, especially those using the PMODE and SMODE commands, a compatibility mode may need to be selected. In this case, select the printer model number option that most closely matches the printer being replaced.

Expanded Font

This option defines the type of expanded characters the PGL will select.

- **Scalable.** These expanded characters have rounded edges.
- **Block.** These are block characters compatible with the IGP–X00 printers.
- **Alt Block 1 / Alt Block 2.** Reserved block sets used only for compatibility purposes.

Optimized Ratio

This option selects different bar code ratios for certain bar codes including Code 39 and Interleaved 2 of 5. It is included for compatibility with the IGP–X00 printers.

- **Enable.** Select the alternate bar code ratios.
- **Disable.** Use standard bar code ratios.

Interleaved 2/5 Selection

This option is added to be compatible with a special IGP-X00 customization. Usually, if Interleaved 2/5 bar codes have an odd number of digits, a leading zero is inserted in front of the data. However, this special IGP-X00 customization adds a space character at the end of the bar code instead.

- **Leading Zero.** A leading zero is inserted in front of the data.
- **Trailing Space.** A space is inserted at the end of the data instead of a leading zero.
- **X2 DPD.** When selected, I–2/5 bar code with a magnification X2 will use the specially configured ratios 3:3:6:5 rather than 3:6:9:12 for compatibility issues.

True Form Slew

This option is related to slewing within forms when using the P–Mode command. Customers with new applications are advised to keep this option enabled.

- **Enable.** Form length is accurate according to the form length parameter in the CREATE command.
- **Disable.** Form length is IGP–X00 compatible when using P–Mode.

Printer PI Line

This option enables the IGP to send down PI instructions to the printer to slew the form.

- **Enable.** Send down the PI instructions to the printer (LinePrinter Plus) during form slew. This is IGP–X00 compatible.
- **Disable.** Do not send PI instructions to the printer. LFs are sent instead.

IGP/PGL Character Set Menu

* = Factory default

Select Font	Standard Sets*	Arabic Sets	Cyrillic Sets	European Sets	Greek Sets	Hebrew Sets
	0) ASCII*	ASMO 449*	Code Page 866*	8859-2 Latin 2*	DEC 256 Greek*	Hebrew Old*
	1) German	ASMO 449+	Cyrillic CP 437	Latin 2 852	ELOT 928 Greek	Hebrew New
	2) Swedish	ASMO 708	Cyrillic 113	Mazovia	Greek 3	Hebrew DEC
	3) Danish	ASMO 708+	Cyrillic 8859-5	Kamenicky	ABY Greek	Latin-1 Hebrew
	4) Norwegian	MS DOS CP710	ISO 915	Roman 8	ABG Greek	
	5) Finnish	MS DOS CP720	Code Page 855	Slovenian 437	ELOT 927 Greek	
	6) English	Sakr CP714	7-bit Cyrillic	Slovenian 1250	Greek 851	
	7) Dutch	Aptec CP715		Code Page 865	Greek 437	
	8) French	CP 786		Code Page 860	Greek 8859-7	
	9) Spanish	Arabic CP 864		Latin 1 8859-1		
	10) Italian	Arabic CP 1046		Latin 5 8859-9		
	11) Turkish	Arabic Lam One				
	12-23) Reserved	Arabic Lam Two				
	24-31) User Defined					
	Code Page 437					
	Code Page 850					
					Turkish Sets	Misc. Sets
					Data Gen. Turk.*	Block-set 10CPI*
					DEC Turkish	Italics Set
					IBM Turkish	
					Siemens Turkish	
					PTT Turkish	
					IBC Turkish	
					Bull Turkish	
					AS400 Turkish	
					Unisys Turkish	
					NCR Turkish	
					PST Turkish	
					UNIS-1 Turkish	
					Code Page 853	

IGP Configurations – VGL

Features

Code V Graphics language (VGL) is an Intelligent Graphics Printing (IGP) software emulation designed for your line matrix printer. The IGP Code V emulation of the QMS® Code V™ Version II programming language produces on-line forms, bar codes, and alphanumeric text-generation. The graphics processing features are detailed below.

On-Line Form and Label Generation

On-Line Form and Label Generation makes it easy to create forms or labels with the “preprinted” look for each application. VGL programs control all graphics functions, dramatically reducing host computer programming and processing time. Graphics capabilities include boxes, vertical and horizontal, solid and dashed lines with a variety of thickness, logos, and special alphanumeric print features.

Variable Bar Codes

Variable Bar Codes allow the bar code for your application to print with standard or user-defined ratios in vertical or horizontal orientations. Available bar codes are: Codabar, Code 39, Code 93, Code 128 with Subsets A, B, and C, and Code EAN/UCC 128, EAN 8, EAN 13, Interleaved 2 of 5, MSI, UPC-A, UPC-E, POSTNET, POSTBAR, ROYAL MAIL, and UPC Shipping. POSTNET is available only in the horizontal direction. A dark print mode is included for darker, high-contrast bar codes. The IBARC bar code command prints bar codes in four orientations: horizontal, rotated 90, rotated 180 or rotated 270 degrees.

Expanded and Compressed Print

Expanded and Compressed Print draws attention where needed. Alphanumeric height and width are controlled independently for a tremendous range of character sizes up to 9.9 inches wide and tall. Four compressed print sizes are available – 12, 13.33, 15, and 17.65 (characters per inch), permitting up to 144 columns in an 8.5-inch printed area (17 cpi).

Rotated Alphanumerics

Rotated Alphanumerics permit new concepts in form design. Normal, expanded, and compressed character strings can be rotated 90 degrees clockwise, counterclockwise, or printed upside down.

Logos

Logos are easily created using alphanumeric commands and a variety of print and shading features, providing a “customized” appearance for forms, reports, and labels. The registered trademark, copyright, TUV, GS–Mark, UL, and CSA symbols are provided as standard designs on the VGL, and you can also define custom symbols.

Reverse and Shaded Print

Reversed and Shaded Print permit highlighting and contrasting by printing white characters on a dark background or white characters on a gray, shaded background. Various levels or patterns of gray shading and reverse printing may combine with the many other print features to create distinctive designs.

Automatic Increment/Decrement Capability

Automatic Increment/Decrement Capability allows batch form processing. Individual alphabetic, numeric, and bar code data fields can be identified and automatically incremented or decremented by any amount, beginning from a specified reference point.

Standard Character Sets

Standard Character Sets provide you with many different character sets. The Based on the Multinational Character Set, you may create your own character sets using characters defined and stored in flash memory.

Configuring the Emulation with the Control Panel

The settings, or configuration parameters, such as selecting the host interface and parallel/serial data input, are adjusted according to the printer function key descriptions in this manual. Configure the VGL as you would configure the printer for other features.

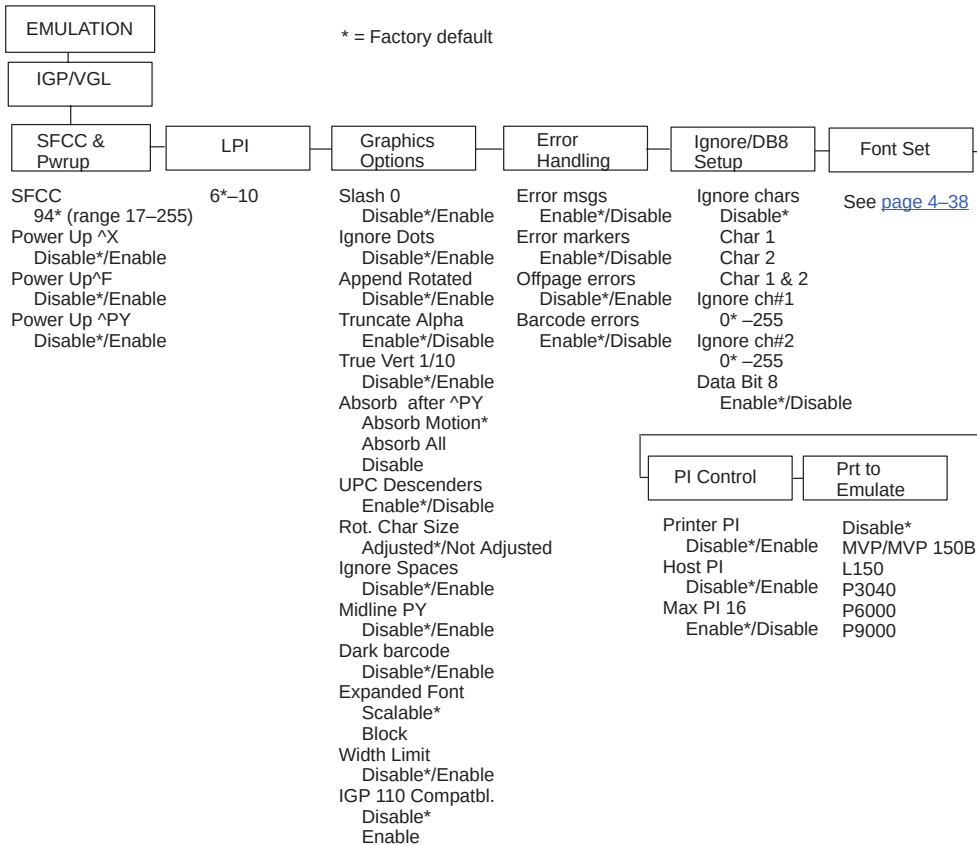
You can select VGL default parameters directly from the control panel, or by control codes as explained in the [*IGP/VGL Programmer's Reference Manual*](#). The VGL parameters are described on the following pages. Parameters marked with an asterisk (*) indicate the default value. The printer must be offline to enter the configuration structure.

Pressing an invalid key to enter a parameter value may move you to another level in the configuration or exit the configuration menu completely. Configure the IGP/VGL according to your specific requirements.

IMPORTANT ***BEFORE you reconfigure the IGP/VGL, print a configuration sheet to see all of the current settings.***

!

The IGP/VGL Emulation Submenu



SFCC & Pwrup

This option has several suboptions that determine the SFCC and power–up configuration that will be used with VGL.

SFCC

This option selects the Special Function Control Character. The default value is the caret ^ (decimal 94). Valid values are 17 through 255. Throughout this manual, the caret is used as the SFCC. Obtain a configuration printout to determine the currently selected SFCC.

Power Up ^X

Enable selects the ignore mode as the power-up default, and selects the graphics mode ^PY as the power-up default. All characters are ignored until a ^A command is received.

Power Up ^F

Enable selects free format as the power-up default, and selects the graphics mode ^PY as the power-up default. Free format causes the VGL to ignore carriage returns, line feeds and all characters below 20 hex sent from the host.

Power Up PY

Enable selects the graphics mode ^PY as the power-up default.

LPI

This is the number of lines to be printed per inch. For example, at 6 lpi there is 1/6-inch from the top of one print line to the top of the next print line.

Graphics Options

Following are several options that configure printing output.

Slash 0

This parameter allows you to print the numeral '0' with or without the slash. This option applies to all character sets except OCR-A and OCR-B.

- **Disable.** Zero is printed without a slash.
- **Enable.** Zero is printed with a slash.

Ignore Dots

Enable causes the VGL to expect position values to be specified in only 1/10ths of an inch. If the dot position is also given, it is treated as text.

Append Rotated

Enable appends logos to an alphanumeric string rotated in a clockwise, counterclockwise, or inverted orientation. Otherwise, the logo is treated as a separate element.

Truncate Alpha

When enabled, this parameter prevents the printing of Error 48 (Element Off Page Error) if alphanumeric data, including spaces, extends beyond the right side of the form.

True Vert 1/10

Determines if a vertical 1/10 of an inch parameter is used as 1/10 of an inch (Enabled) or as 7/72 of an inch (Disabled). When used as 1/10 of an inch, rounding will occur to the nearest 1/72 of an inch. This can cause vertical moves that have the same value to differ by $\pm 1/72$ of an inch. When used as 7/72 of an inch, the absolute move is slightly smaller than expected. For example, a one inch move would be 70/72 of an inch. Vertical moves that have the same value will be identical in length.

Absorb after ^PY

Absorb motion prevents paper motion following a system terminator in a graphics ^PY command. When absorb all is selected, the system ignores all the data and terminator until a host generated terminator is detected. When disabled, system terminators following a graphics command are sent to the printer and result in paper motion.

UPC Descenders

This parameter allows you to print bar code descenders for human readable data in the UPC/EAN bar codes.

- **Disable.** UPC/EAN bar codes are printed without descenders if there is no human readable data.
- **Enable.** UPC/EAN bar codes are printed with descenders, even if there is no human readable data.

Rot. Char Size

When the Rotated Character Size option is Adjusted, rotated (clockwise/counter-clockwise), expanded characters have a different size than an unrotated character with the same size parameters. If Not Adjusted, rotated, expanded characters will be the same size as unrotated characters with the same size parameters.

Ignore Spaces

When disabled, trailing spaces are NOT deleted from alphanumeric elements in a graphics pass. When enabled, trailing spaces are deleted from alphanumeric elements in a graphics pass.

Midline ^PY (includes ^PN)

When disabled, the Graphics mode Enabled command, ^PY, must be the first three characters of a line. When enabled, the ^PY or ^PN can occur anywhere in a line.

Dark barcode

When enabled, bar codes will be printed in dark mode no matter what the dark mode is set for. If this option is disabled, dark mode printing will only occur if the dark mode command is sent before the bar code command.

Expanded Font

- **Scalable:** These expanded characters have rounded edges.
- **Block:** These are block characters compatible with the IGP-X10 printers.

Width Limit

When enabled, the system will limit the length and width for expanded characters to a limit shown in the following table. [Table 4-1](#) shows the maximum width allowed for a specific height in the range of 00 to 40 (0.0 to 4.0 inches).

IGP 110 Compatible

This option instructs the VGL to behave similarly to the IGP–110 with respect to certain commands. All new users with new applications should select the “Disable” option. Selecting this mode insures the printer will behave as described in this manual.

- **Disable.** The IGP does not emulate the IGP–110 mode.
- **Enable.** The IGP emulates the IGP–110 version.

Table 4–1. Width Limit Table

Height Param.	Max. Width Allowed	Height Param.	Max. Width Allowed
00	99	21	51
01	99	22	53
02	3	23	56
03	6	24	58
04	8	25	61
05	11	26	63
06	13	27	66
07	16	28	68
08	18	29	71
09	21	30	73
10	23	31	76
11	26	32	78
12	28	33	81
13	31	34	83
14	33	35	86
15	36	36	88
16	38	37	91
17	41	38	93
18	43	39	96
19	46	40	98
20	48		

Error Handling

Following are several options that configure how errors are reported.

Error msgs

When enabled, command syntax is checked and error messages printed when command parameters are incorrect. When disabled, error checking and error messages are suppressed.

Error markers

Enable prints the following error markers for those elements that print beyond the page boundaries:

- >> for elements that begin off the right side of the page;
- << for elements that begin at the indicated position but end off the page;
- ◆ for elements where the starting position of the command contains an error other than an off-page error.

Offpage Errors

When enabled, reports errors for elements that start or end beyond the right edge of the page. When disabled, does not report these errors.

Barcode Errors

When enabled, an error message will print when invalid bar code data is encountered. When disabled, VGL will not print an error for illegal bar code data; the bar code will be skipped.

NOTE: When bar code error is disabled, VGL emulation will try to make the best use of invalid data by either truncating extra digits or adding zeros to the end of bar code data to meet minimum data length requirements for some bar codes. Not all errors will be corrected.

Ignore / DB8 Setup

Determines if character filtering is enabled, or if one or both characters are ignored.

- DISABLE. Character filtering is not enabled.
- Char 1. Character 1 will be filtered. Select the option Ignore ch#1 to specify character 1.
- Char 2. Character 2 will be filtered. Select the option Ignore ch#2 to specify character 2.
- Char 1&2. Characters 1 & 2 will be filtered. Select the options “Ignore ch#1” and “Ignore ch#2” to specify values for these characters.

Ignore ch#1

Specifies character 1 for the character filtering option. Valid values for *n* are from 0 through 255.

Ignore ch#2

Specifies character 2 for the character filtering option. Valid values for *n* are from 0 through 255.

Data Bit 8

When data bit 8 is enabled, the PI line is not passed directly from host to printer; all 8 bits are used for data bits, and characters in the 80–FF hex range can be accessed.

When data bit 8 is disabled (and the host PI line is enabled), data bit 8 internally indicates PI line status. To use the PI line, disable data bit 8, and enable the Host PI configuration option (under the PI Control option on [page 4–37](#)).

NOTE: Data bit 8 is interpreted as *either* data bit 8 or PI signal, but never both. When enabled as data bit 8, data bit 8 has priority over the PI signal, and all data above 7F hex is used to access character data and not to interpret PI line data.

Conversely, when data bit 8 is disabled and the PI signal is used, data bit 8 of the data is reserved for use as the PI function, and you cannot access characters in the 80–FF hex range. Therefore, to access characters in the 80–FF hex range, data bit 8 *must* be enabled.

Font Set

The Font Set specifies which language is currently selected for use with the VGL. Refer to [page 4–38](#) for available selections.

PI Control

Printer PI

Disable indicates that the ASCII emulation is configured with the PI line disabled. Setting this option to Enable informs the VGL that the ASCII emulation is configured with the PI line enabled.

Host PI

Disable indicates the host does not send PI signals. Setting this option to Enable informs the VGL that the host sends PI signals. The Data Bit 8 configuration option must be disabled to transmit the PI line to the printer.

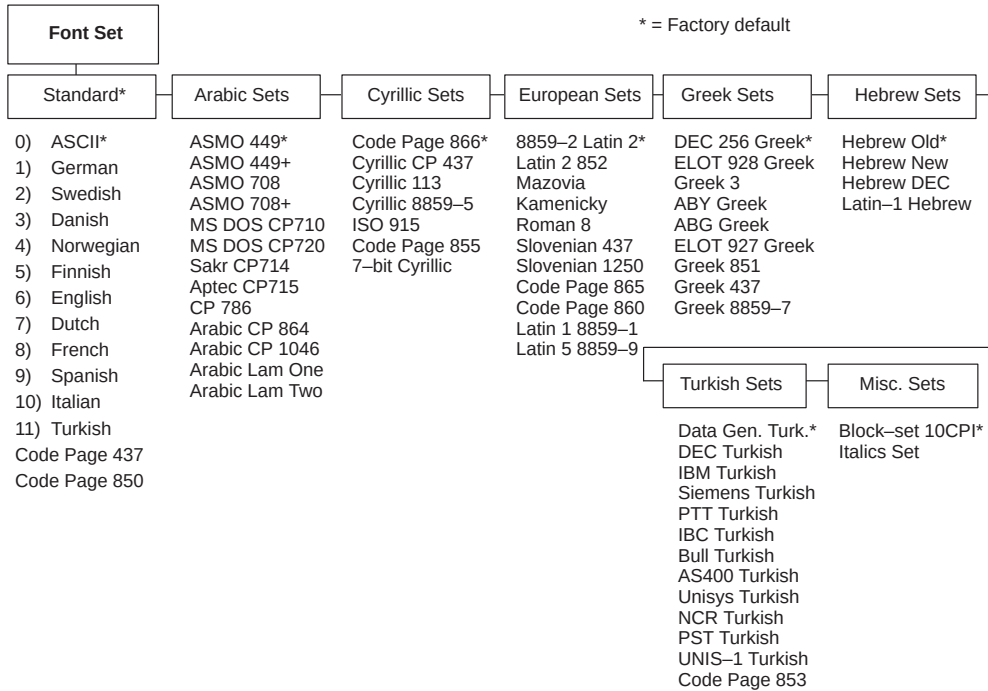
Max PI 16

This parameter determines if the range for a paper slew is from 1 to 15 lines or 1 to 16 lines. If this option is set to enable, a paper slew of 0–15 will move 1–16 lines. If this option is set to disable, A paper slew of 1–15 will move 1–15 lines. A paper slew of 0 will always move 1 line.

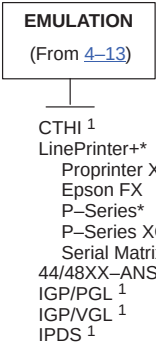
Prt to Emulate

This option allows you to select an earlier model printer/IGP board combination to emulate. When a printer emulation is selected, the scaling command causes the printer to generate a graphic image in the same density as the printer emulation chosen. Five types of printers can be emulated: MVP or MVP 150B, L150, P3040, P6000, and P9000. Once a particular printer emulation is selected, it remains active until the printer is turned off or another printer emulation is selected. All new users with new applications should select the “Disable” option. Selecting this mode insures the printer will behave as described in this manual. The other compatibility modes are required to emulate the behaviors of older printers that may be inconsistent with the documented VGL functionality. Proper use of this feature requires the printer to be equipped with high resolution hammer bank tips (12 mil).

IGP/VGL Character Set Menu



EMULATION Menu

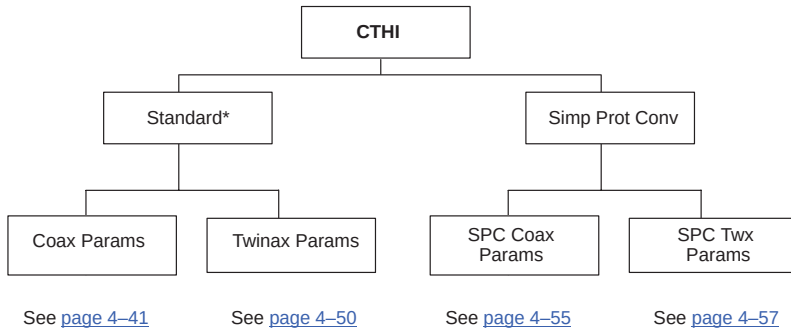


* = Factory default

¹ Optional emulation

The EMULATION menu allows you to select the emulation to be used with your printer. The Proprinter XL, Epson FX, P-Series, P-Series XQ, and Serial Matrix emulations are all part of LinePrinter Plus. You can configure options for the active emulation via the EMULATION menu. Emulation options are further described in their corresponding programmer’s reference manual.

Coax/Twinax Menu Overview



Coax/Twinax Emulations

With a coax interface, the printer emulates the following IBM coax printer models:

- 3287 Models 1 and 2
- 4234 Models 1

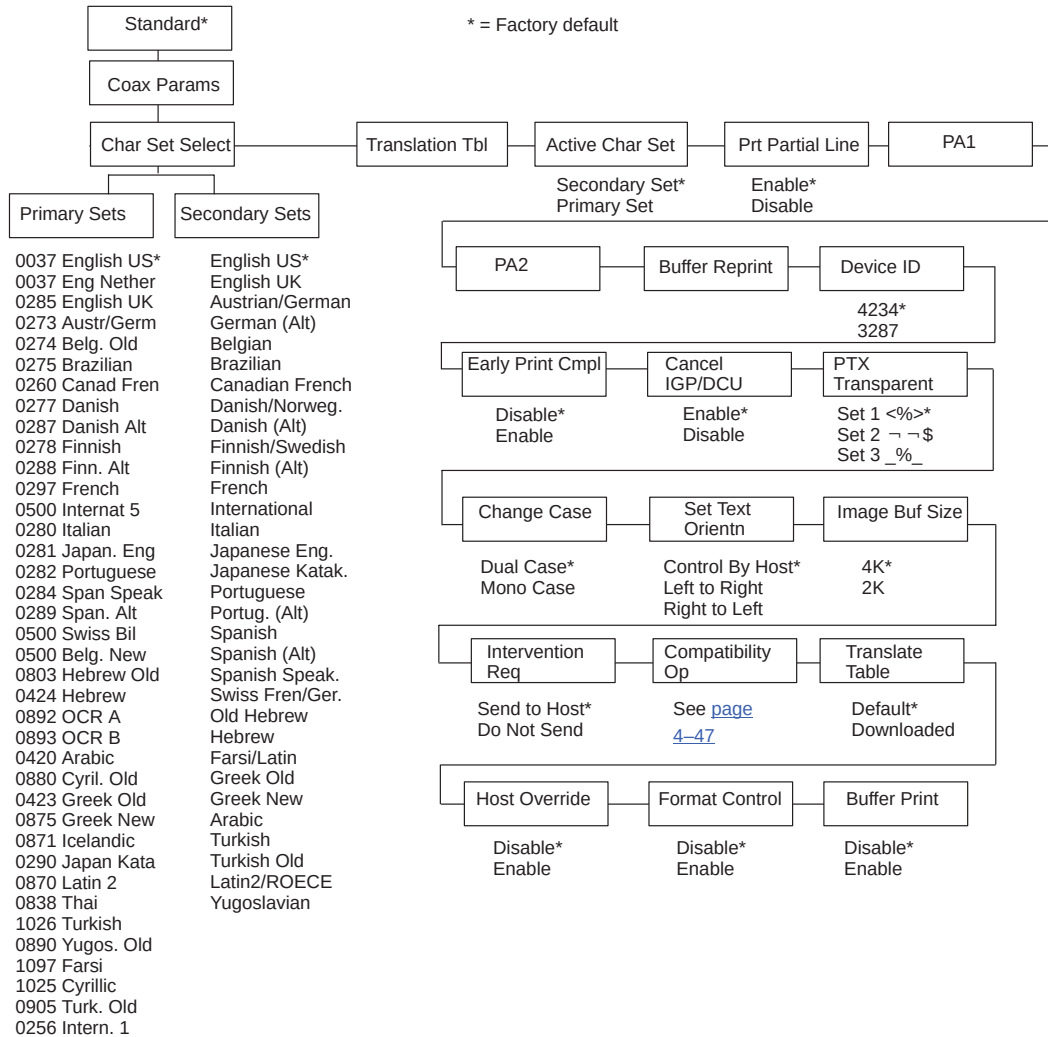
With a twinax interface, the printer emulates the following IBM twinax printer models:

- 4234 Models 2 and 12
- 5225 Models 1, 2, 3, and 4

These emulations are discussed on the following pages.

NOTE: The CTHI emulation selection will only be available if Coax or Twinax is selected from the HOST INTERFACE menu. See [page 4-97](#).

Coax Emulation Menu



Char Set Select

CHAR SET SELECT specifies the print language used by the printer. Character sets are shown in detail in the [Character Sets Reference Manual](#).

Translation Table

TRANSLATION TABLE prints out SCS and DSC/DSE tables of coax interface's current character set. This operation is valid only when coax interface is the current interface.

Active Char Set

This option selects which group of character sets will be active.

Prt Partial Line

When this option is enabled, it forces the printer to print if a partial line is in the printer (i.e. line not ending with a LF). When disabled, the last partial line of data will not be printed.

PA1

PA1 is only valid when the printer is in the NOT READY state and the coax System Network Architecture Character Set (SCS) data stream is active. This function displays the "PA1 ENABLED" message when the ENTER key is pressed and sends a special operator request to the host when the printer is made READY. Refer to the [Programmer's Reference Manual](#) for more information about SCS.

NOTE: Selecting the PA1 menu item again ("PA1 DISABLED" appears on the operator panel) or selecting the PA2 menu item will reset the pending PA1 function.

PA2

PA2 is only valid when the printer is in the NOT READY state and the coax SCS data stream is active. This function displays the "PA2 ENABLED" message when the ENTER key is pressed and sends a special operator request to the host when the printer is made READY.

NOTE: Selecting the PA2 menu item again (“PA2 DISABLED” appears on the operator panel) or selecting the PA1 menu item will reset the pending PA2 function.

Buffer Reprint

This option is valid only when the printer is printing in SCS mode. When the ENTER key is pressed, “Buffer Reprint Enabled” is displayed and an Intervention Required status is sent to the host. Pressing ENTER again cancels the Buffer Reprint function and “Buffer Reprint Disabled” is displayed.

Device ID

This parameter defines the printer emulation, as follows:

- 3287
- 4234

After the emulation has been changed, a POR status is sent to the host.

Early Print Complete

Early Print Complete capability allows the printer to send print (order) complete status to the host before the printer is actually done printing all data. This option is valid only when the printer is in DSC/DSE mode.

- ENABLE means the printer will send an acknowledgement to the host when it is able to accept more data.
- DISABLE means the printer will suppress the Early Print Complete response until all printing is complete.

NOTE: When an Early Print Complete is enabled and an error occurs, there may be data loss experienced.

Cancel IGP/DCU

- ENABLE cancels all buffers when a job is put on hold from the host or when the CANCEL key is pressed.
- DISABLE does not cancel any internal buffer in the printer when a job is put on hold from the host, or when the CANCEL key is pressed.

PTX Transparent Control

You can enable additional printer features that are not accessible through standard Coax emulations. To access these features, send text commands in the data stream. The commands must have a start and end code. Three sets (each containing a start and end code) are available:

- Set 1: start code = <%
end code = >
- Set 2: start code = x - -
end code = \$
- Set 3: start code = _ %
end code = _

Change Case

CHANGE CASE specifies the font as MONO or DUAL case. It is available only in non-SCS mode. The host will be notified of the change when the printer is made READY. If the character set is one of the following 'right to left' sets, MONO CASE prints the same as DUAL CASE: Katak., Hebrew, Old Hebrew, and Farsi.

SCS (System Network Architecture Character String) Mode is controlled by the host computer.

Set Text Orientn

SET TEXT ORIENTATION specifies the direction in which characters are printed on the page. This allows the printer to print languages which are printed right to left instead of left to right.

- CONTROL BY HOST
- LEFT TO RIGHT
- RIGHT TO LEFT

The "CONTROL BY HOST" option allows printers configured as a 4234 to use the "SET TEXT ORIENTATION" command from the host. When a RIGHT TO LEFT language is selected, the host will be notified of print direction changes when the printer is made READY.

Image Buf Size

IMAGE BUFFER SIZE (screen buffer size) allows you to select the following image buffer sizes. This option is only valid when printer emulates 3287. For the 4234 emulation, the buffer size is fixed at 4k. A POR status is sent to the host when the printer is made READY.

- 2K
- 4K

Intervention Req

Select from SEND TO HOST or DO NOT SEND. If SEND TO HOST is selected, the printer sends a signal to the host computer when any of the following occur:

- Printer faults occur.
- Hold mode time-out occurs.

Translate Table

This parameter defines which translate table to use for printing. The following options are available:

- DEFAULT translates data by using the default table of the current character set.
- DOWNLOADED translates data from EBCDIC to internal code by using the downloaded translate table.

Host Override

HOST OVERRIDE determines whether the printer accepts certain commands sent by the host, or continues to use the current operator panel settings. The following host commands are ignored when HOST OVERRIDE is enabled: line length, forms length, lines per inch (LPI), characters per inch (CPI), print quality, and text orientation (i.e. left to right). When HOST OVERRIDE is enabled, these settings retain their operator panel settings.

- DISABLE allows certain host commands (line length, forms length, LPI, CPI, print quality, and text orientation) to override operator panel settings. Note that the information appearing on the message display may *not* match the data stream setting. No values will change upon initial selection of the disable option.
- ENABLE permits operator panel settings to override host data stream commands.

Format Control

FORMAT CONTROL enables the printer to reflect the same spacing as CTPC model printers after absolute and relative move commands are executed. The following options are available:

- DISABLE reflects distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after horizontal and vertical tabs are executed).
- ENABLE does not reflect distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after horizontal and vertical tabs are executed).

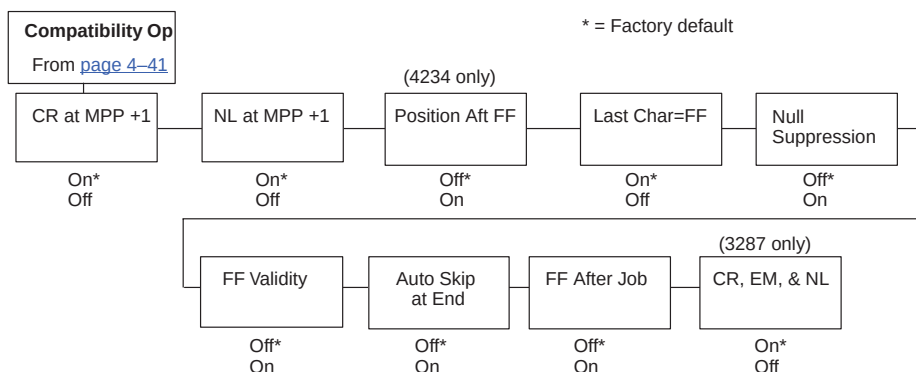
Buffer Print

When enabled, the BUFFER PRINT parameter prints the EBCDIC data and control codes received from the host as hex values. Refer to Chapter 6 for information on how to obtain a hex code printout.

NOTE: Use of this parameter may alter print attributes set by the host computer. A power cycle may be required after changing BUFFER PRINT from enable to disable.

Compatibility Options Menu (Coax Only)

The Compatibility Options menu allows you to select special printer functions in the non-SCS mode, based on the capabilities of the printer emulated.



CR at MPP+1

MPP is Maximum Print Position, which is also known as line length. This option controls a carriage return at the end of a print line and at MPP+1.

- OFF produces a carriage return to the first print position of the current line.
- ON produces a carriage return to the first print position of the next line.

NL at MPP+1

NL AT MPP+1 controls how many lines are skipped when the carriage returns to a new line.

- OFF moves to the first print position of the next print line.
- ON moves to the first print position two lines down from the current position.

Position Aft FF (4234 only)

POSITION AFT FF allows you to select the location of the print position after a form feed command is sent.

- OFF sets the printer to print at position 2 of the first print line on the next form.
- ON sets the printer to print at print position 1 of the first print line on the next form.

Last Char = FF

LAST CHAR = FF determines the print line position when a form feed command is the last code encountered in the print buffer.

- OFF moves to the first print position on the first line of the next form.
- ON moves to the first print position on the second line of the next form.

NOTE: This option is ignored if AUTO SKIP AT END is on.

If configured as a 3287, and a form feed occurs in the middle of a print buffer, the printer defaults to the first print position on the second line of the next form, regardless of the setting of this option.

Null Suppression

NULL SUPPRESSION will either treat nulls as blank spaces or ignore them. If nulls are ignored, the print position does not move.

- OFF ignores nulls.
- ON treats nulls as blank spaces.

FF Validity

FF VALIDITY determines if the position of a form feed command affects its execution.

- OFF normally performs a form feed only if it occurs at the first print position in a line or at Maximum Print Position +1. A form feed command at any other position is recognized as a blank.
- ON allows the printer to perform a form feed command anywhere in the data stream.

Auto Skip at End

AUTO SKIP AT END specifies whether or not to perform an automatic form feed at the end of a print buffer. If form feed is the last character in the print order, the form feed function is supplied by the AUTO SKIP AT END option.

- OFF sets the printer to print at print position 1 of the next line.
- ON sets the printer to print at print position 1 of the first line of the next form.

FF After Job

This option determines the print position after an operator-initiated local copy (print screen function).

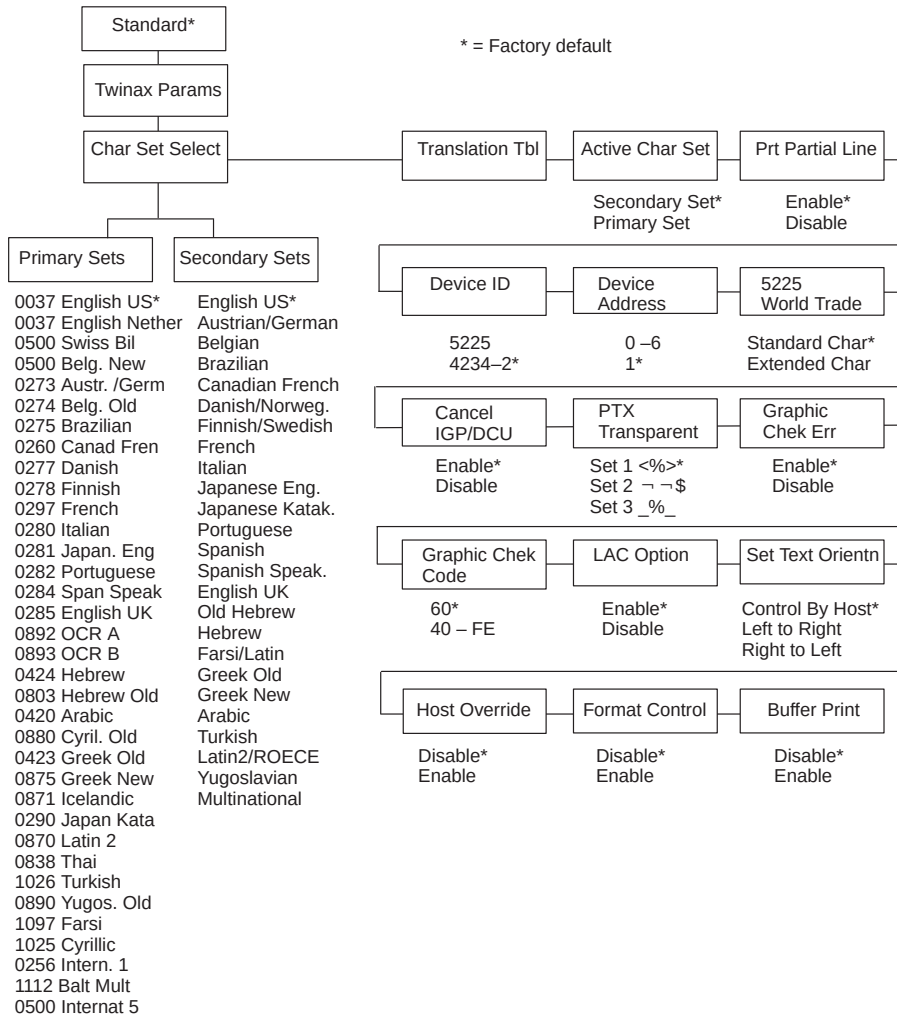
- OFF performs an automatic new line command after completing a print buffer (unless a new line, form feed or carriage return command was the last one executed). The printer is set to print at print position 1 of the next line.
- ON performs an automatic form feed command unless a form feed was the last one executed. The printer is set to print at print position 1 of the first line on the next form.

CR, EM, and NL (3287 only)

CR (Carriage Return), EM (Error Message), and NL (New Line) specify that the printer treat the CR, EM, and NL control codes either as spaces or as control codes.

- OFF treats the CR, EM and NL commands as spaces.
- ON treats the CR, EM and NL commands as control codes.

Twinax Emulation Menu



Char Set Select

CHARACTER SET specifies the print language used by the printer. Character sets are shown in detail in the [Character Sets Reference Manual](#).

Translation Table

TRANSLATION TABLE prints out a table of the twinax interface's current character set. This operation is valid only when the twinax interface is the current interface.

Active Char Set

This option selects which group of character sets will be active.

Prt Partial Line

When this option is enabled, it forces the printer to print a partial line (i.e. line not ending with a LF) before moving to the top of form on the next page. When disabled, the last partial line of data will not be printed. After the emulation has been changed, a POR status is sent to the host.

Device ID

This parameter defines the printer emulation, as follows:

- 5225
- 4234-2

Device Address

DEVICE ADDRESS allows you to set the device address from 0 through 6. The host directs data and commands on the twinax line to a specific device based on its unique device address. After the address has been changed, a POR status is sent to the host.

5225 World Trade

The 5225 emulation has a multinational character set that serves as a base and 14 world trade character set assortments.

Cancel IGP/DCU

CANCEL IGP/DCU has the following options:

- ENABLE cancels all buffers when a job is put on hold from the host, or the CANCEL key is pressed.
- DISABLE does not cancel any internal buffer in the printer when a job is put on hold from the host, or the CANCEL key is pressed.

PTX Transparent

You can enable additional features that are not available in standard Twinax emulations. To access these features, send text commands in the data stream. The commands must have a start and end code. Three sets (each containing a start and end code) are available:

- Set 1: start code = <%
end code = >
- Set 2: start code = x - -
end code = \$
- Set 3: start code = _%
end code = _

Graphic Chek Err

GRAPHIC CHEK ERR allows overriding of the host setting of the SGEA (Set Graphic Error Action) command. For more information about the SGEA command, refer to the [*Programmer's Reference Manual*](#).

- ENABLE is the host setting for the SGEA and is used by the printer. If the SGEA command is requested to stop on graphic errors, the printer will stop when a graphic error is detected.
- DISABLE ignores the SGEA command from the host. The printer does not stop when an error is detected; instead, it substitutes the character selected in the "GRAPHIC CHEK CODE" menu entry.

Graphic Chek Code

GRAPHIC CHEK CODE specifies the replacement character to print in place of any unprintable character that is received from the host. The character becomes the printer default when:

- The printer is powered off and then powered on.
- An SGEA command specifies to use the operator panel default.
- The “GRAPHIC CHEK ERR” option is disabled.

LAC Option

The LAC OPTION allows the host system to load alternate character images into the printer. This may be used for designing graphics, bar codes, and charts, or for printing in foreign languages.

- ENABLE prints the LAC character as defined.
- DISABLE ignores the LAC definition from the host and prints from the currently selected character set.

Set Text Orientn

SET TEXT ORIENTN specifies the direction in which characters are printed on the page. This allows the printer to print languages that are printed right to left instead of left to right.

- CONTROL BY HOST
- LEFT TO RIGHT
- RIGHT TO LEFT

Host Override

HOST OVERRIDE determines whether the printer accepts certain commands sent by the host, or continues to use the current operator panel settings. The following host commands are ignored when HOST OVERRIDE is enabled: line length, forms length, lines per inch (LPI), characters per inch (CPI), print quality, and text orientation (i.e. left to right). When HOST OVERRIDE is enabled, these settings retain their operator panel settings.

NOTE: Host margin and tab settings will not be ignored whether or not HOST OVERRIDE is enabled.

- DISABLE allows certain host commands (line length, forms length, LPI, CPI, print quality, and text orientation) to override operator panel settings. Note that the information appearing on the message display may *not* match the data stream setting. No values will change upon initial selection of the disable option.
- ENABLE permits operator panel settings to override host data stream commands.

Format Control

FORMAT CONTROL enables the printer to reflect the same spacing as CTPC model printers after absolute and relative move commands are executed. The following options are available:

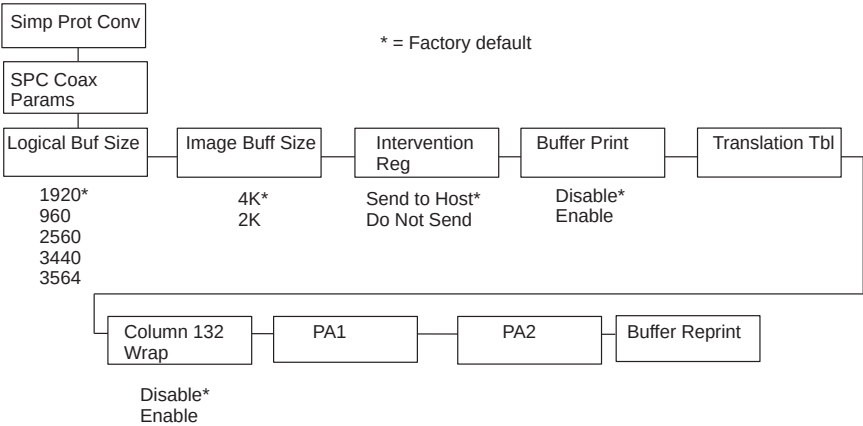
- DISABLE reflects distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after absolute and relative move commands are executed).
- ENABLE does not reflect distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after absolute and relative move commands are executed).

Buffer Print

When enabled, the BUFFER PRINT parameter prints the EBCDIC data and control codes received from the host as hex values. The output can be used to troubleshoot printer data reception problems. Refer to Chapter 6 for information on how to obtain a hex code printout.

NOTE: Use of this parameter may alter print attributes set by the host computer. A power cycle may be required after changing BUFFER PRINT from enable to disable.

SPC Coax Params



Logical Buff Size

Refers to the size of the printer buffer which should be set the same as the host screen (buffer) size. If the host screen size is unknown, use 1920.

Image Buff Size

This option refers to the printer base buffer size. This size must be set to a value greater than or equal to the Logical Buffer Size.

Intervention Reg

Select SEND TO HOST to have the printer send a signal to the host whenever any of the following events occur:

1. The printer faults.
2. HOLD Mode Time-Out
3. CANCEL PRINT key is pressed.

Buffer Print

When enabled, the BUFFER PRINT parameter prints the EBCDIC data and control codes received from the host as hex values. Refer to Chapter 6 for information on how to obtain a hex code printout.

Translation Table

TRANSLATION TABLE prints out a table of the coax interface's current character set. This operation is valid only when the coax interface is selected.

Column 132 Wrap

When enabled, this option causes the printer to line wrap at 132 characters despite the current print density allowing more characters per line.

PA1

PA1 is only valid when the printer is in the NOT READY state and the coax System Network Architecture Character Set (SCS) data stream is active. This function displays the "PA1 ENABLED" message when the ENTER key is pressed and sends a special operator request to the host when the printer is made READY. Refer to the [Programmer's Reference Manual](#) for more information about SCS.

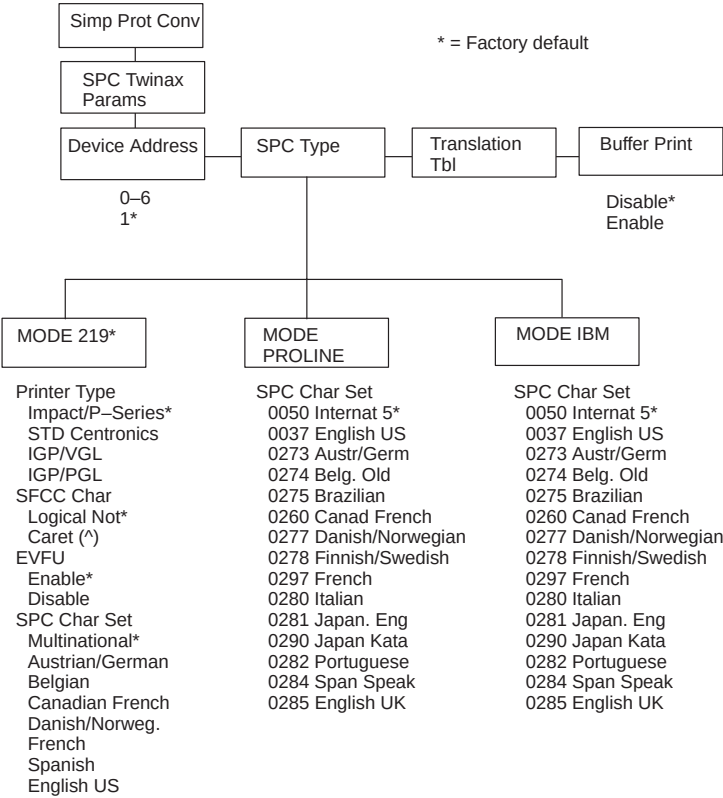
PA2

PA2 is only valid when the printer is in the NOT READY state and the coax SCS data stream is active. This function displays the "PA2 ENABLED" message when the ENTER key is pressed and sends a special operator request to the host when the printer is made READY.

Buffer Reprint

This option is valid only when the printer is printing in SCS mode. When the ENTER key is pressed, "Buffer Reprint Enabled" is displayed and an Intervention Required status is sent to the host. Pressing ENTER again cancels the Buffer Reprint function and "Buffer Reprint Disabled" is displayed.

SPC Twx Params



Device Address

DEVICE ADDRESS allows you to set the device address from 0 through 6. The host directs data and commands on the twinax line to a specific device based on its unique device address. After the address has been changed, a POR status is sent to the host.

SPC Type

Allows you to select a specific type of Simple Protocol Convertor (SPC) Twinax emulation. MODE 219 for Model 219 protocol convertor, MODE PROLINE for Printronix protocol convertor, and MODE IBM for the IBM protocol convertor.

Printer Type

Determines the SPC Twinax emulation 'Mode'. Set to Std Centronics, IGP/VGL, or IGP/PGL, the SET LINE DENSITY and SET PRINT DENSITY commands are translated into a Carriage Return (CR) only and vertical format commands are ignored unless the EVFU is enabled.

SFCC Char

Determines what character is printed when an EBCIDIC LOGICAL NOT character (↵ Hex 5F) is received from the host.

EVFU

When enabled, the EVFU parameter allows vertical format control by the host in all four printer type modes. When disabled, vertical format control is only allowed in IMPACT/P-SERIES mode.

SPC Char Set

Allows you to select the print language character set.

Translation Table

TRANSLATION TABLE prints out a table of the twinax interface's current character set. This operation is valid only when the twinax interface is selected.

Buffer Print

When enabled, the BUFFER PRINT parameter prints the EBCDIC data and control codes received from the host as hex values. The output can be used to troubleshoot printer data reception problems. Refer to Chapter 6 for information on how to obtain a hex code printout.

LinePrinter Plus Emulation Submenu

LinePrinter+ * = Factory default						
Printer Protocol	CPI/LPI Select	Font Attributes	Page Format	Print Char. Set	Reset Cmd CFG Ld	Downloaded Fonts
See page 4-63	Select CPI	Typeface	Margins		Disable*	Char Operations
	10.0* CPI	Data Processing*	Left Margin ¹		Enable	Delete frm Flash
	12.0 CPI	NLQ	0*			Load frm Flash
	13.3 CPI	OCR-A	0-369 columns			Save to Flash
	15.0 CPI	OCR-B	Right Margin ¹			Ld Char at Pwrup
	17.1 CPI	High Speed	0*			Disable*/Enable
	20.0 CPI	NLQ Sans Serif	0-369 columns			Set Operations
	Select LPI	High Speed 100	Bottom Margin			Delete frm Flash
	6.0 LPI*	NLQ 200	0 lines*			Load frm Flash
	8.0 LPI	DP 200	0-451			Save to Flash
	10.3 LPI	High Speed 64	Perforation Skip ¹			Delete frm RAM
		BARCODE 145	Disable*			Ld Set at Pwrup
		BARCODE 160	1/2 inch			Disable*/Enable
		Prop. Spacing	2/3 inches			
		Disable*/Enable	5/6 inches			
		Bold Print	1 inch			
		Disable*/Enable	Form Length			
		Italic Print	Abs. Length IN ¹			
		Disable*	11.0 inches*			
		Forward Slant	0.1-24			
		Backward Slant	Abs. Length MM ¹			
		Slashed Zero	279.4*			
		Disable*/Enable	000.1-609.6			
		Text Position	Funcnt. of lines			
		Top of Line*	66 lines*			
		Bottom of Line	1-192			
			Form Width			
			Abs. Width IN ¹			
			13.6 inches*			
			00.1-13.6			
			Abs. Width MM ¹			
			345.4 mm*			
			000.1-345.4 mm			
			Function of CPI			
			136 Characters*			
			1-272			

¹ These menus appear only if the Coax or Twinax HOST INTERFACE is *not* selected.

CPI/LPI Select

This parameter lets you specify the characters per inch (cpi) and lines per inch (lpi) values.

Font Attributes

This submenu allows you to define the following font attributes:

- **Typefaces:**

Data Processing – A general purpose font printing out at 120 dpi horizontally and 72 dpi vertically. The width of the font will vary with each cpi.

NLQ – A high quality font printing at 180 dpi horizontally and 96 dpi vertically. This font has serifs and the width of the font varies with cpi.

OCR-A / OCR-B – Optical character recognition fonts printing at 120 dpi horizontally and 144 dpi vertically. Both fonts print only at 10 cpi.

High Speed – A draft quality font printing at 120 dpi horizontally and 48 dpi vertically. The width of the font varies with cpi.

High Speed 100 – A draft quality font printing at 100 dpi horizontally and 48 dpi vertically. When chosen from the front panel, it defaults to 10 cpi. The cpi can then be varied, but the width will not change.

NLQ 200 – This NLQ font prints at 200 dpi horizontally and 96 vertically. When chosen from the front panel, it defaults to 12 cpi. The cpi can then be varied, but the width will not change.

DP 200 – This Data Processing font prints at 200 dpi horizontally and 72 vertically. When chosen from the front panel, it defaults to 12 cpi. The cpi can then be varied, but the width will not change.

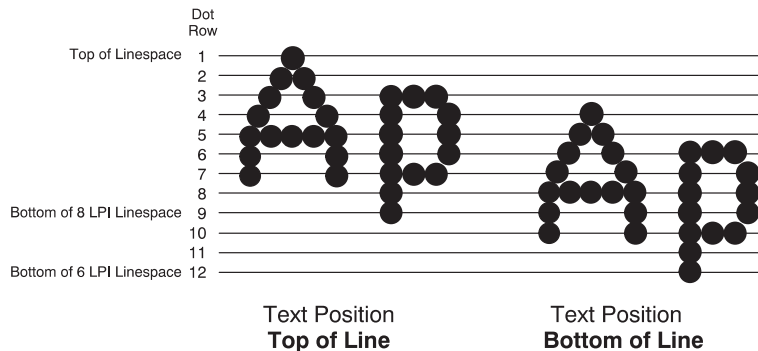
High Speed 64 – This font prints at 120 dpi horizontally and 64 vertically. When chosen from the front panel, it defaults to 10 cpi. The cpi can then be varied, but the width will not change.

BARCODE 145 – This Data Processing font prints at 145 dpi horizontally and 72 vertically. When chosen from the front panel, it defaults to 12 cpi. The cpi can then be varied, but the width will not change.

BARCODE 160 – This Data Processing font prints at 160 dpi horizontally and 72 vertically. When chosen from the front panel, it defaults to 13 cpi. The cpi can then be varied, but the width will not change.

- **Proportional Spacing:** A font in which the width of a character cell varies with the width of the character. For example, [i] takes less space to print than [m]. Using proportional fonts generally increases the readability of printed documents, giving text a typeset appearance.
- **Bold Print:** This attribute specifies text of a heavy line thickness.

- **Italic Print:** This attribute specifies a slanted (either forward or backward) text style.
- **Text position:** Specifies where the text will positioned in the line space. When set to Top of Line, text will be positioned at the top of the line space. When set to Bottom of Line, the text will be positioned as if it were at the bottom of a 6 lpi line space. The following example shows both Top of Line and Bottom of Line text positions:



You can also specify if the zero character will print with a slash.

Page Format

Margins

- The right margin is set in columns; column zero is defined as the far right edge of the page, and column numbering increments from right to left.
- The left margin is also set in columns; however, column zero is defined as the far left edge of the page, and column numbering increments from left to right.
- The bottom margin is defined in lines, starting from line zero at the bottom of the page.

Perforation Skip

Perforation Skip allows or prevents printing on page perforation. When enabled, it sets up a skip-over margin of 1/2", 2/3", 5/6", or 1". For example, a skip-over margin of 1" allows a 1" margin at the bottom of the page perforation.

Forms Length

Forms length is the number of lines that can be printed on a page. You can set forms length in inches, millimeters (mm), or as a function of the current LPI (lines per inch).

Forms Width

The forms width can be specified in inches, millimeters, or as a function of the current CPI (characters per inch). The forms width set should not exceed the actual paper width.

Print Char Set

When this selection is displayed and the ENTER key is pressed, the current character set is printed.

Reset Cmd CFG Ld

When the printer receives a host data stream reset command (ESC @ or ESC[K) in addition to resetting printer variables, the power up configuration will be loaded.

- **Disable:** The factory configuration is loaded when the reset command is executed.
- **Enable:** The power up configuration is loaded when the reset command is executed.

Downloaded fonts

This option allows you to download a substitution table to replace any character in the current character set with a different character in the same font.

- **Char Operations:** This option allows you to delete a character from flash, load a character from flash, and save a character to flash.
- **Ld Char at Pwrup:** This option allows you to disable or enable loading a character set at power up.
- **Set Operations:** This option allows you to delete a character set from flash, load a character set from flash, save a character set to flash, and delete a character set from RAM.
- **Ld Set at Pwrup:** This option allows you to disable or enable loading a character set at power up.

Printer Protocol Submenus

LinePrinter+ Printer Protocol From page 4-64				
* = Factory default				
P-Series* page 4-64	P-Series XQ page 4-69	Serial Matrix page 4-72	Proprinter XL page 4-76	Epson FX page 4-79
Control Code 06 8.0 LPI* 10.3 LPI 6.0 LPI	Control Code 06 8.0 LPI* 10.3 LPI 6.0 LPI	Control Code 06 8.0 LPI* 10.3 LPI 6.0 LPI	Define CR Code CR=CR* CR=CR+LF Auto LF	Define CR Code CR=CR* CR=CR+LF Auto LF
Control Code 08 Elongated* Backspace	Define CR Code CR=CR* CR=CR+LF	Define CR Code CR=CR* CR=CR+LF	Enable* Disable	Enable* Disable
Define CR Code CR=CR* CR=CR+LF	Auto LF Disable* Enable	Auto LF Enable* Disable	Define LF Code LF=LF* LF=CR+LF	Define LF Code LF=LF* LF=CR+LF
Auto LF Disable* Enable	Define LF Code LF=CR+LF* LF=LF	Overstrike Enable* Disable	FF Valid at TOF Enable* Disable	Printer Select Disable* Enable
Overstrike Enable* Disable	Compressed Print char 01 SOH* char 03 ETX char 09 HT	Define LF Code LF=LF* LF=CR+LF	Character Set <i>See page 4-76</i>	Character Set <i>See page 4-79</i>
Define LF Code LF=CR+LF* LF=LF	Elong./Alt. Font Elng=BS Font=SO* Elng=SO Font=BS	Printer Select Disable* Enable	Alt. Char Set Set 1* Set 2	20 CPI Condensed Enable* Disable
Select SFCC 1*	HS Print char 02 STX* char 03 ETX char 09 HT	Alternate Set 80-9F Control Code* Printable	20 CPI Condensed Enable* Disable	Alt. Set 80-9F Control Code* Printable
0-7F	VFU Selected EVFU* DVFU CVFU Disable	Character Set <i>See page 4-72</i>		
VFU Selected	VFU Selected EVFU* DVFU CVFU Disable	Esc d command Even dot plot* Double high		
Alt. Set 80-9F Control Code* Printable	Upr. Case Select Disable* Enable			
Character Set <i>See page 4-68</i>	Slew Relative 1-16 Lines* 1-15 Lines			
SFCC d command Even dot plot* Double High				
PSeries Dbl High Normal* P3/4/6/6 Compat				

P-Series Emulation

Control Code 06

Control Code 06 defines the function of ASCII code 06 hex (ACK). You can select an alternate line spacing of 6, 8 or 10.3 LPI.

Control Code 08

Control Code 08 defines the function of ASCII code 08 hex (BS). You can define the code to output an elongated character or to output a backspace.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

- CR = CR does not insert an extra Line Feed after each Carriage Return.
- CR = CR + LF inserts an extra Line Feed after each Carriage Return.
The next print position will be print position 1 of the next line.

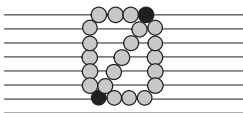
Auto LF

This option defines the printer actions when print data is received past the forms width setting.

- Enable performs an automatic carriage return and line feed when data is received past the forms width.
- Disable discards any data past the forms width.

Overstrike

When overstrike is enabled, common dots appear darker in characters that are printed over each other, as shown below. The print position moves one-half dot to the right. If you are using overstrike for bolding and if overstrike is disabled, no bolding will occur. Overstrike printing occurs at a Decreased speed.



Define LF Code

This option determines whether an automatic carriage return should occur whenever a line feed command is received.

- LF = LF does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- LF = CR + LF forces an automatic carriage return with each line feed command. The next print position is position 1 of the next line.

Select SFCC

This parameter allows you to select which ASCII codes will function as the Special Function Control Character (SFCC) command delimiter. P-Series codes can use 0–127 (hex 00 through hex 7F). Options include the following:

- ESC (1B hex)
- SOH (01 hex)
- ETX (03 hex)
- CIRCUMFLEX (5E hex) — also called carat (^)
- TILDE (7E hex) — (~)

NOTE: SOH, ETX and ESC are non-printables. The characters (^) and (~) are printable; however, do not use them as printables in the host data stream if either is chosen as a delimiter, or print errors will occur.

VFU Select

The VFU Select feature controls how the printer handles vertical formatting.

- **EVFU:** Enables the VFU and selects P-Series compatible Electronic Vertical Format Unit (EVFU).
- **DVFU:** Enables the VFU and selects the Dataproducts compatible Direct Access Vertical Format Unit (DVFU).
- **CVFU:** Enables the VFU and selects the Centronics compatible Direct Access Vertical Format Unit (CVFU).
- **Disable:** Disables all VFU processing.

Alt. Set 80–9F

This feature determines whether the printer processes ASCII codes 80 hex through 9F hex as control codes or as printable characters.

Character Set

You can specify IBM PC, Multinational, ECMA Latin 1, or DEC Multinational, as the character set under the P-Series standard sets. As [page 4–68](#) shows, several language and special character set choices are available as submenu options under IBM PC, Multinational, ECMA Latin 1, and DEC Multinational. IBM PC with ASCII (USA) as the Primary Subset and with Code page 437 as the Extended Subset is the default character set.

There are also a number of groups of multinational character sets. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as Roman 8) and press ENTER. Both the group and the desired set will be starred to indicate selection.

SFCC d Command

This menu option is for backward compatibility.

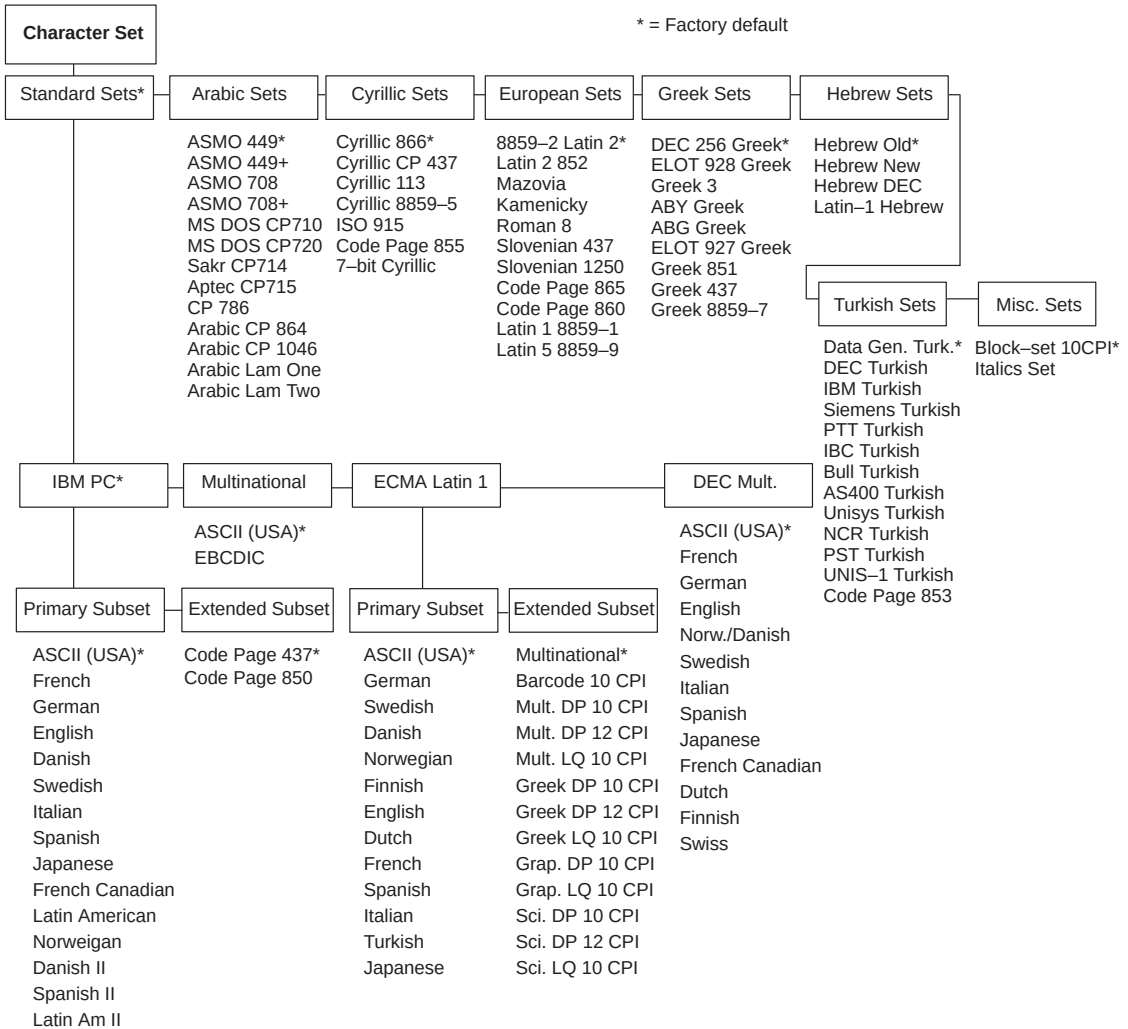
- Even dot plot: This option interprets SFCC d command as even dot plot.
- Double high: This option interprets SFCC d Command as double high. Select this option for backward compatibility.

PSeries Dbl High

This menu option allows printing compatibility between the current and older models of Printronix printers.

- Normal: This is normal Double High printing for current model printers.
- P3/4/6/9 Compat: Where older printers printed two dot rows higher, this option allows for compatibility by raising the print two dot rows to match the current models dot row value (two dot rows lower).

P-Series Character Set Menu



P-Series XQ Emulation

Control Code 06

Control Code 06 defines the function of ASCII code 06 hex (ACK). You can select an alternate line spacing of 6, 8 or 10.3 LPI.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

- CR = CR does not insert an extra Line Feed after each Carriage Return.
- CR = CR + LF inserts an extra Line Feed after each Carriage Return.
The next print position will be print position 1 of the next line.

Auto LF

This option defines the printer actions when print data is received past the forms width setting.

- DISABLE discards any data past the forms width.
- ENABLE performs an automatic carriage return and line feed when data is received past the forms width.

Define LF Code

This option determines whether an automatic carriage return should occur whenever a line feed command is received.

- LF = LF does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- LF = CR + LF forces an automatic carriage return with each line feed command. The next print position is position 1 of the next line.

Compressed Print

The Compressed Print parameter controls which host command sets compressed printing.

- CHAR 01 SOH
- CHAR 03 ETX
- CHAR 09 HT

Elong./Alt. Font

The Elong./Alt. Font parameter controls which host command sets elongated (double high) fonts and extended character set.

- ELNG=BS (08 hex) FONT=SO (0E hex)
- ELNG=SO FONT=BS

High Speed Print

The High Speed Print Mode parameter controls which host command sets high speed printing.

- CHAR 02 STX
- CHAR 03 ETX
- CHAR 09 HT

VFU Select

The VFU Select feature controls how the printer handles vertical formatting. Choices are:

- **EVFU:** Enables the VFU and selects P-Series compatible Electronic Vertical Format Unit (EVFU).
- **DVFU:** Enables the VFU and selects the Dataproducts compatible Direct Access Vertical Format Unit (DVFU).
- **CVFU:** Enables the VFU and selects the Centronics compatible Direct Access Vertical Format Unit (CVFU).
- **Disable:** Disables all VFU processing.

Upper Case Select

The Uppercase Select parameter controls how the printer handles lowercase characters it receives from the host computer. When enabled, all characters will be printed in uppercase.

- DISABLE prints lowercase characters received from the host computer as lowercase, and uppercase characters received from the computer as uppercase.
- ENABLE prints lowercase characters received from the host computer as their corresponding uppercase equivalents; uppercase characters received from the computer are printed as uppercase.

Slew Relative

The Slew Relative feature determines the number of lines slewed (the number of lines the form is advanced to a preset location) when an EVFU Slew Relative command is received.

- 1–16 Lines
- 1–15 Lines

Serial Matrix Emulation

Control Code 06

Control Code 06 defines the function of ASCII code 06 hex (ACK). You can select an alternate line spacing of 6, 8 or 10.3 LPI.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

- CR = CR does not insert an extra Line Feed after each Carriage Return.
- CR = CR + LF inserts an extra Line Feed after each Carriage Return.
The next print position will be print position 1 of the next line.

Auto LF

The Auto LF option defines the printer actions when print data is received past the forms width setting.

- DISABLE discards any data past the forms width.
- ENABLE performs an automatic carriage return and line feed when data is received past the forms width.

Overstrike

Overstrike determines the action required when a line is printed over a previous line because a carriage return was received without a line feed.

- DISABLE replaces the characters from the first line with the second line.
- ENABLE prints the second line on top of the first line.

Define LF Code

This option determines whether an automatic carriage return should occur whenever a line feed command is received.

- LF = LF does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- LF = CR + LF forces an automatic carriage return with each line feed command. The next print position will be position 1 of the next line.

Printer Select

This option determines if the ASCII DC1 and DC3 control codes can be used to disable and enable the printer.

- DISABLE ignores the DC1 and DC3 control codes.
- ENABLE disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.

Alternate Set 80–9F

This option determines if data in the range of hex 80 through hex 9F should be interpreted as a control code or as a printable character.

- CONTROL CODE interprets data in the range of hex 80 through hex 9F as a control code.
- PRINTABLE prints data in the range of hex 80 through hex 9F.

Character Set

You can specify IBM PC, Multinational, ECMA Latin 1, DEC Multinational, OCR–A, or OCR–B as the character set under Serial Matrix. As [page 4–75](#) shows, several language and special character set choices are available as submenu options under IBM PC, Multinational, ECMA Latin 1, and DEC Multinational. IBM PC with ASCII (USA) as the Primary Subset and with Code Page 437 as the Extended Subset is the default character set.

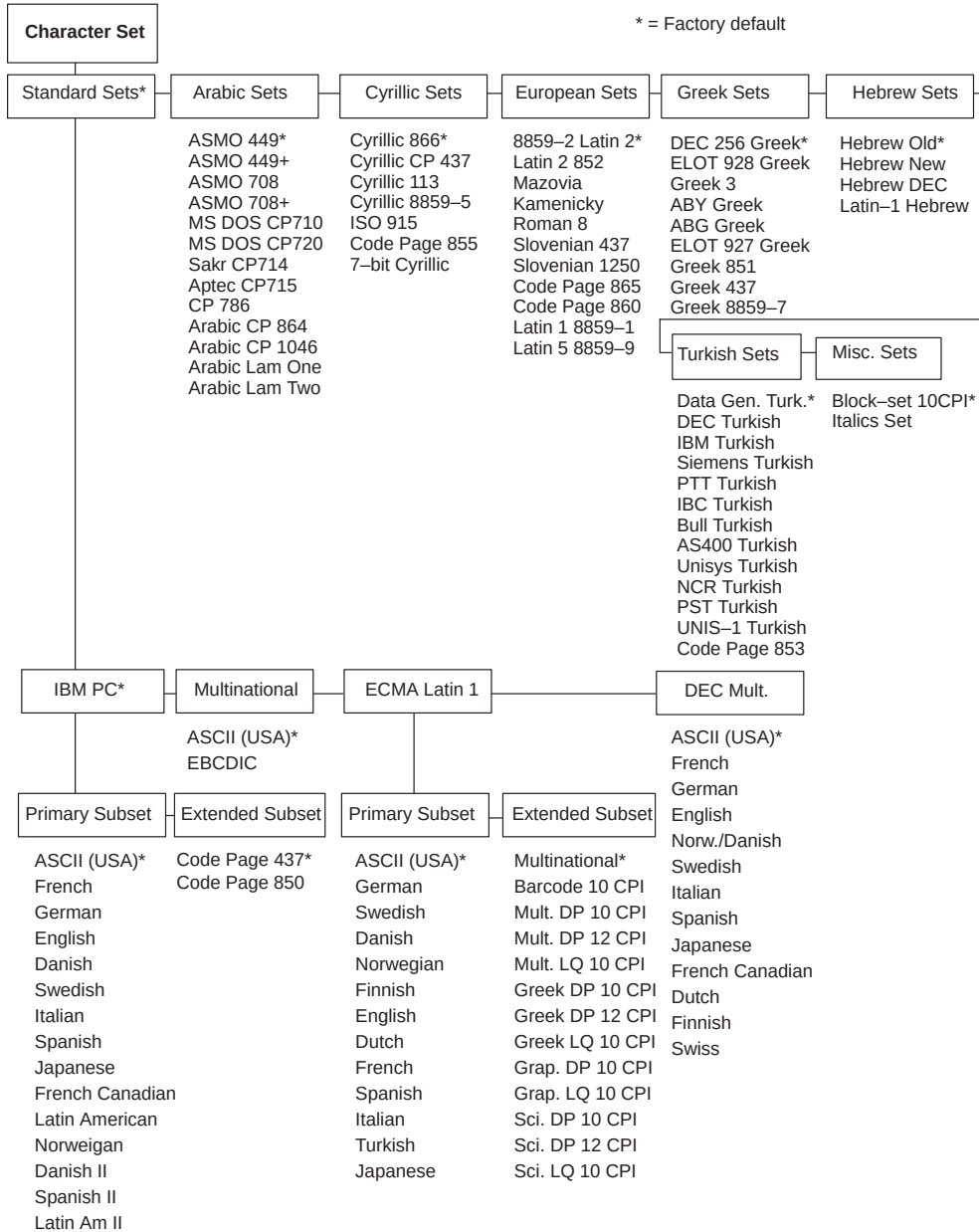
There are also a number of groups of multinational character sets. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as Roman 8) and press ENTER. Both the group and the desired set will be starred to indicate selection. Character sets are shown in detail in the [*Character Sets Reference Manual*](#).

ESC d Command

This menu option is for backward compatibility.

- Even dot plot: This option interprets ESC d command as even dot plot.
- Double high: This option interprets ESC d Command as double high.
Select this option for backward compatibility.

Serial Matrix Character Set Menu



Proprinter XL

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (0D hex) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (0A hex) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

- CR = CR does not insert an extra Line Feed after each Carriage Return.
- CR = CR + LF inserts an extra Line Feed after each Carriage Return.

Auto LF

This option defines the printer actions when print data is received past the forms width setting.

- Enable performs an automatic carriage return and line feed when data is received past the forms width.
- Disable discards any data past the forms width.

Define LF Code

This option determines whether an automatic carriage return should occur whenever a line feed command is received.

- LF = LF does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- LF = CR + LF forces an automatic carriage return with each line feed command. The next print position is position 1 of the next line.

FF Valid at TOF

The FF Valid at TOF option determines whether the printer will perform a Form Feed when the host sends a Form Feed command, if the printer is at the Top of Form.

- Disable will not perform a form feed when the host sends a Form Feed command and the printer is at the Top of Form.
- Enable performs a form feed when the host sends a Form Feed command and the printer is at the top of form.

Character Set

The first level of this menu selects which group of character sets will be used. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as 8859–2 Latin 2) and press ENTER. By moving down in the menu and scrolling through the list of European sets, a different set may be chosen by pressing ENTER. Character sets are shown in detail in the [*Character Sets Reference Manual*](#).

Alternate Char Set

This option determines if data in the range of hex 80 through hex 9F should be interpreted as a control code or as a printable character.

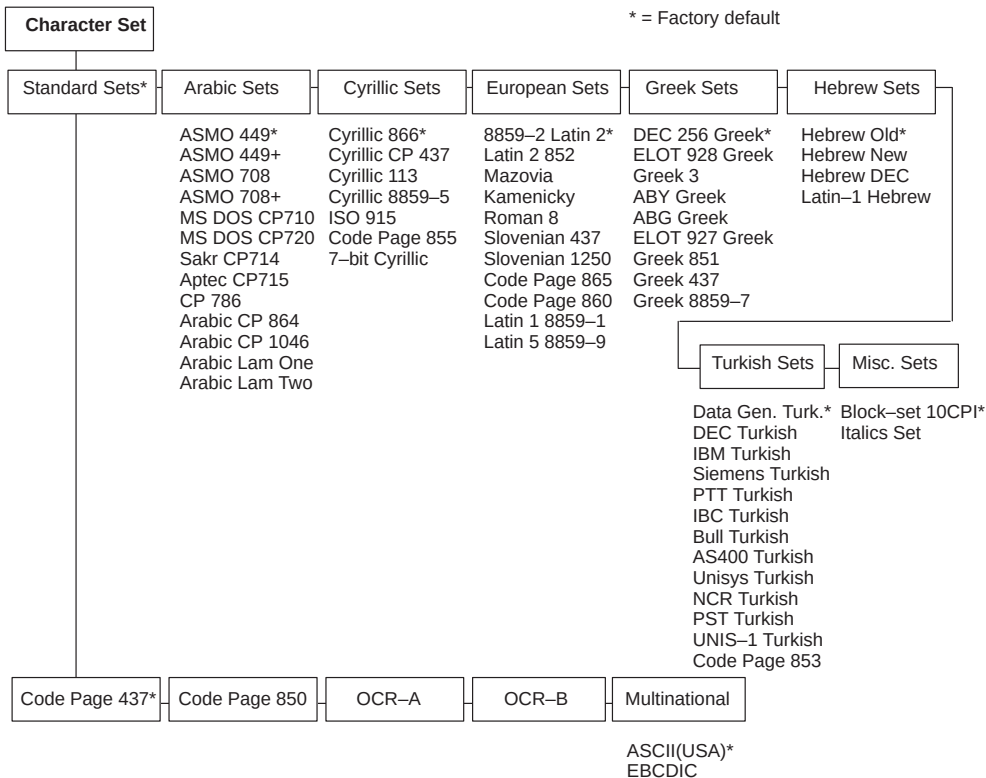
- Set 1 interprets data in the range of hex 80 through hex 9F as a control code.
- Set 2 prints data for the characters at hex locations 03, 04, 05, 06, 15 and 80 through 9F.

20 CPI Condensed

Compressed print characters are narrower than the normal character set. This is helpful for applications where you need to print the maximum amount of information on a page.

- Enable prints characters about 60 percent the width of normal characters when compressed print is chosen by the host computer.
- Disable will not compress print widths, even if condensed print is chosen by the host.

Proprinter XL Character Set Menu



Epson FX

Define CR Code

The Define CR Code option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

- CR = CR does not insert an extra Line Feed after each Carriage Return.
- CR = CR + LF inserts an extra Line Feed after each Carriage Return.

Auto LF

This option defines the printer actions when print data is received past the forms width setting.

- Enable performs an automatic carriage return and line feed when data is received past the forms width.
- Disable discards any data past the forms width.

Define LF Code

The Define LF Code option controls the action of the printer when it receives a Line Feed code (0A hex) from the host computer. If this feature is enabled, each time the printer receives a Line Feed, it inserts an additional Carriage Return code (0D hex) into the data stream. This feature is required if the host computer does not send Carriage Returns to the printer.

- LF = LF does not add a Carriage Return with a Line Feed.
- LF = CR + LF adds an extra Carriage Return with each Line Feed.

Printer Select

This option determines if the ASCII DC1 and DC3 control codes can be used to disable and enable the printer.

- Disable ignores the DC1 and DC3 control codes.
- Enable disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.

Character Set

This parameter selects a character set for the Epson emulation. Note that when OCR-A or OCR-B is selected as the print language, the Font Attribute Typeface option is changed to OCR-A or OCR-B, respectively.

The first level of this menu selects which group of character sets will be used. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as 8859-2 Latin 2) and press ENTER. By moving down in the menu and scrolling through the list of European sets, a different set may be chosen by pressing ENTER. Character sets are shown in detail in the [Character Sets Reference Manual](#).

Alternate Set 80-9F

This option determines if data in the range of hex 80 through hex 9F should be interpreted as a control code or as a printable character.

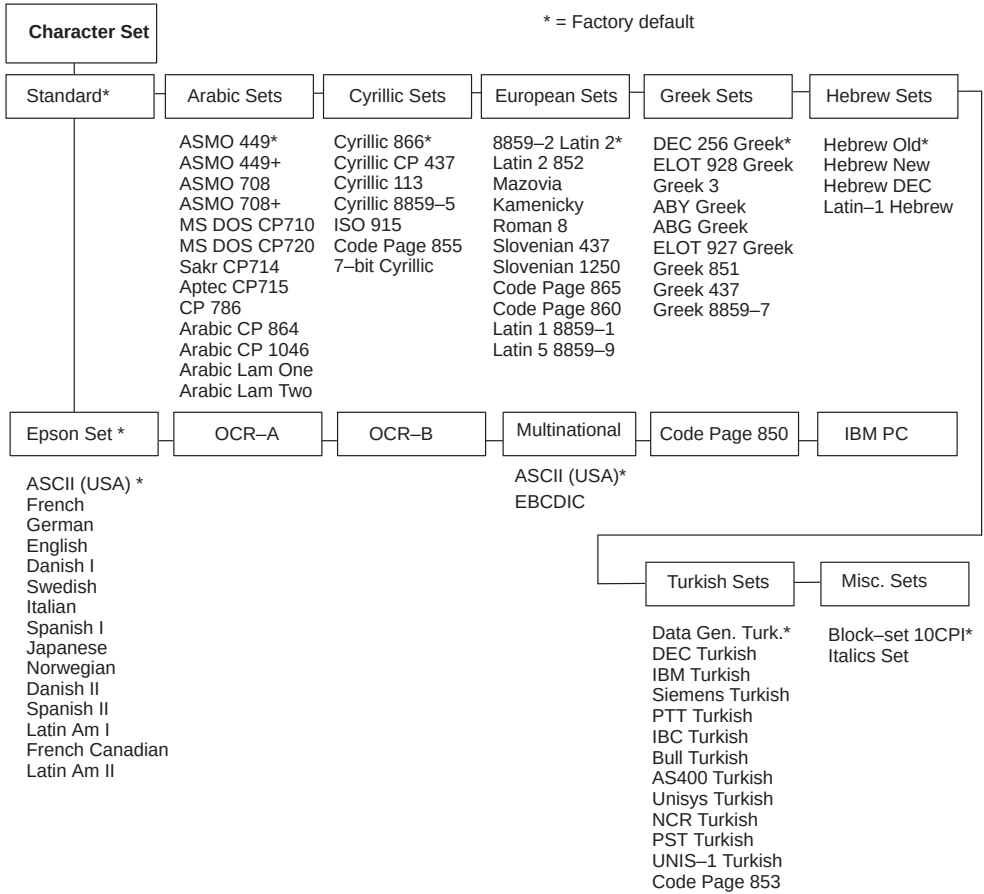
- CONTROL CODE interprets data in the range of hex 80 through hex 9F as a control code.
- PRINTABLE prints data in the range of hex 80 through hex 9F.

20 CPI Condensed

Compressed print characters are narrower than the normal character set. This is helpful for applications where you need to print the maximum amount of information on a page.

- Enable prints about 60 percent of the width of normal characters when compressed print is chosen by the host computer. For example, a 12 CPI Draft font will compress to 20 CPI.
- Disable will not compress print widths, even if condensed print is chosen by the host.

Epson FX Character Set Menu



ANSI Emulation Menu

Emulation

44/48XX – ANSI

CPI/LPI Select

Select CPI
10.0* CPI
12.0 CPI
13.3 CPI
15.0 CPI
16.7 CPI
17.1 CPI
Select LPI
6.0 LPI*
3.0
4.0
8.0 LPI

Font Attributes

Typeface
Data Processing*
Gothic NLQ
Char. Graphics
High Speed
Italics NLQ
Courier NLQ
OCR-A
OCR-B
Prop. Spacing
Disable*/Enable
Bold Print
Disable*/Enable
Slashed Zero
Disable*/Enable

Page Format

Margins
Left Margin
0 columns*
0–369
Right Margin
0 columns*
0–369
Top Margin
0 lines*
0–451
Bottom Margin
0 lines*
(range 0–451)
Form Length
Funct. of lines
66 lines*
1–192
Form Width
Function of CPI
136 Characters*
1–272

Define CR Code

CR = CR *
CR = CR + LF

Auto LF

Disable*
Enable

Define LF Code

LF = CR + LF *
LF = LF

Character Set

Latin 1 8859–1 *
Cyrillic 8859–5
IBM PC–2 CP 437
IBM PC–2 CP 850
Slavic CP 852
Cyrillic CP 855
Fr. Can. CP 863
Russian CP 866
Greek CP 851
Turkish CP 853
Portug. CP 860
Arabic CP 864
Nordic CP 865
Latin 2 8859–2
Latin 3 8859–3
Latin 4 8859–4
Lat. Ara. 8859–6
Lat. Gre. 8859–7
Lat. Heb. 8859–8
Latin 5 8859–9
Turkish2 CP 867
Pol. Maz. CP 8576
Turkish CP 8577
Greek CP 8573
Italian CP 23
Spanish CP 24
USA
German
French A
French B
French Canadian
Dutch Netherlands
Italian
United Kingdom
Spanish
Danish/Norw. A
Danish/Norw. B
Danish/Norw. C
Danish/Norw. D
Swed./Finish A
Swed./Finish B
Swed./Finish C
Swed./Finish D
Swiss
USA
Yugoslavian
United Kingdom A
Turkish
Greek
DEC Mult.
Roman 8

* = Factory default

Printer Select

ON = DC1/OFF = DC3*
Disable

ESC c sequence

Enable *
Disable

received CR

Observe *
Ignore

received Del

Observe *
Ignore

Private Mode

Set 2 *
Set 1

Pos. on BC/OvrSz

Set to top *
Set to bottom

BC check digit

by host *
by printer

Barcode darkmode

Enable*
Disable

PUM default

Decipoints *
Lines/columns

Truncate PI Slew

Truncate at TOF*
Disable

CPI/LPI Select

This submenu defines the default values for the horizontal and vertical character spacing. The number of characters per inch can range from 10.0 up to 17.1. The number of lines per inch can range from 3.0 to 8.0.

Font Attributes

This submenu allows you to define the following font attributes: typeface, proportional spacing, bold print, and italic print. You can also specify if the zero character will print with a slash. See [page 4–60](#) for a detailed explanation of this submenu.

Margins

The MARGINS parameter defines where the bottom, left, and right page margins are located.

- LEFT MARGIN defines where the first print column is located. The left margin is specified as the number of characters from the left edge of the form.
- RIGHT MARGIN defines where the last print column is located. The right margin is specified as the number of characters from the right edge of the form.
- TOP MARGIN defines the location of the first print line on the page. The top margin is specified as the number of lines from the top of the form's position.
- BOTTOM MARGIN defines the location of the last print line on the page. The bottom margin is specified as the number of lines from the bottom of the form's position.

Forms Length

FORMS LENGTH specifies the forms length in lines. The maximum forms length in lines depends on the current LPI setting; it is equal to the maximum forms length in inches multiplied by the current LPI setting. For example, at 6 LPI the maximum forms length is 6 LPI x 24 inches = 144 lines.

Only valid forms length values will be accepted. If you select a length that is larger than the maximum length for the current LPI, the maximum length will be used. If you need a longer page length, you must first change the LPI.

IMPORTANT *If the forms length is set in lines and you change the LPI, the effective page length changes to the forms length in characters divided by the new LPI.*

!

NOTE: Receipt of a data stream control code which changes the forms length overrides the forms length previously specified via the operator panel.

Forms Width

FORMS WIDTH specifies the forms width in characters.

FORMS WIDTH IN CHARACTERS allows you to input the forms width in characters from 1 to 232 characters. The maximum forms width in characters depends on the current CPI setting; it is equal to the maximum forms width in inches multiplied by the current CPI setting.

Only valid forms width values will be accepted. If a width is selected that is larger than the maximum width for the current CPI, then the maximum width will be used. If a larger width value is desired, then the CPI value must be changed first.

The following table lists the maximum number of characters that can be printed for a given Characters Per Inch (CPI) setting.

CPI Setting	Maximum Forms Width (in CPI)
10.0	* 132
12.0	163
13.3	181
15.0	204
16.7	227
17.1	232

* = Default

IMPORTANT



If the forms width is set in characters and the CPI is changed, the effective page width is changed to be equal to the forms width in characters divided by the new CPI.

NOTE: This applies only if the forms width is set in characters. If the forms width is set in inches or millimeters (mm), changing the CPI does not affect the effective forms width.

Define CR (Carriage Return) Code

The DEFINE CR CODE option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends Line Feeds to the printer.

Auto LF

The AUTO LINE FEED option defines the printer actions when print data is received past the forms width setting.

- DISABLE discards any data past the forms width.
- ENABLE performs an automatic carriage return and line feed when data is received past the forms width.

Define LF Code

The DEFINE LF CODE option controls the action of the printer when it receives a Line Feed code (hex 0A) from the host computer. If this feature is enabled, each time the printer receives a Line Feed, it inserts an additional Carriage Return code (hex 0D) into the data stream. This feature can be used in most installations, but it is required if the host computer does not send Carriage Returns to the printer.

- LF = CR + LF adds an extra Carriage Return with each Line Feed.
- LF = LF does not add a Carriage Return with a Line Feed.

Character Sets

This parameter selects a character set for the ANSI emulation. Note that when 0876 OCR-A or 0877 OCR-B is selected as the print language, the print quality is changed to OCR-A or OCR-B, respectively. Character sets are shown in detail in the [Character Sets Reference Manual](#).

Printer Select

This option determines if the ASCII DC1 and DC3 control codes can be used to disable and enable the printer.

- ON = DC1/OFF = DC3 disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.
- DISABLE ignores the DC1 and DC3 control codes.

ESC c Sequence

This option resets the printer parameters to the factory defaults.

Received CR

This option determines if a received CR is handled as a Carriage Return or if it is ignored.

Received Del

Similar to the CR option, this determines if a received DEL should be handled as a Delete or ignored.

Private Mode

This menu option determines the default type of character set (Set 1 or Set 2). This can also be set by ESC sequences ESC [>5h and ESC [>51. Refer to these descriptions for further detail.

Pos. on BC/OvrSz

This option determines where the logical printhead is located after printing bar codes or oversized characters. If the options are set to “Set to top,” the paper is fed back to the top of the bar codes or oversized characters. This allows printing on the same line. If set to “Set to bottom,” the printer will continue printing without backing up.

BC Check Digit

This option is used to configure if the host calculates the bar code check digit (“by host”), and sends it along with the bar code, or if the bar code is sent without the check digit, and the printer calculates and adds it. Note that if configured to “by host,” the check digit is not verified by the printer, but printed as it was received.

Barcode darkmode

- **ENABLE:** The bar codes will be printed at a higher resolution.
- **DISABLE:** The bar codes are printed at lower resolution but at a higher speed.

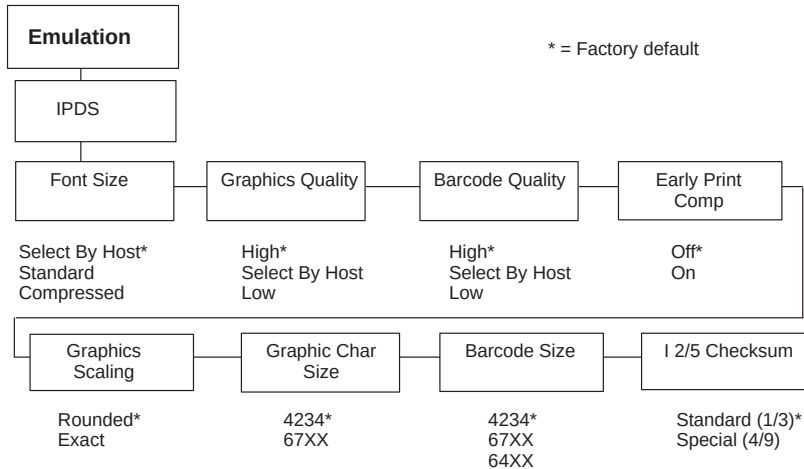
PUM Default

This is the “unit of measure” as it is used within the ANSI emulation. Coordinates received in ESC sequences can be sent in two UOM's: Decipoints, which is a unit of 1/720 inch, or in lines or columns using the current LPI and CPI values. The UOM used is determined by this configuration setting.

Truncate PI Slew

- **DISABLE:** PI slews will be completed independent of their length.
- **TRUNCATE AT TOF:** The slew is terminated when the next Top-of-Form is reached. (This function applies to the ANSI EVFU only.)

IPDS Emulation



Your IPDS printer emulates the IBM 4234 twinax models 008 and 012.

IPDS Twinax printers can only print IPDS data streams and nothing else. Even a simple job, such as a screen print, is IPDS data in a twinax attachment. Because the printer definition on a twinax host is either set automatically (by auto configuration) or manually, the printer type is already known.

NOTE: A general discussion about starting and stopping IPDS can be found in the *IBM 4234 Product and Programming Reference Manual* (GC31–3879). Sending a non–IPDS data stream to an IPDS printer and visa–versa will result in a hung spool file or writer.

Font Size

This parameter chooses the font size which will be used by IPDS.

- STANDARD – The font ID will be converted to a decompressed font ID.
- COMPRESSED – The font ID will be converted to a compressed font ID.
- SELECT BY HOST – The font ID will be unchanged.

Graphics Quality

This parameter chooses the print quality of graphics.

- HIGH – Graphics is printed at 144 dot rows per inch.
- LOW – Graphics is printed at 72 dot rows per inch.
- SELECT BY HOST – The application decides the quality of the graphics.

Barcode Quality

This parameter chooses the print quality of bar code labels.

- HIGH – Label is printed at 144 dot rows per inch.
- LOW – Label is printed at 72 dot rows per inch.
- SELECT BY HOST – The application decides the quality of the labels.

Early Print Complete

This parameter chooses when to send a Print Complete to the Controller.

- OFF – Print Complete is sent if page is printed completely.
- ON – Print Complete is sent immediately. The next page will be created.
This improves the print performance when starting the next page.

Graphic Scaling

This parameter chooses the scaling factor for graphics when the Mappin. Control option of the IPDS Write Graphics Control command is SCALE TO FIT:

- ROUNDED – Calculations are rounded up in the desired output resolution.
- EXACT – Graphics will be scaled as accurate as possible.

Graphic CharSize

This parameter will emulate the graphic character size of the selected printer model.

- 4234 – IBM 4234
- 67XX – Decision Data 67XX

Barcode Size

This parameter will emulate the bar code sizes of the selected printer model.

- 4234 – IBM 4234
- 67XX – Decision Data 67XX
- 64XX – IBM 6400 series

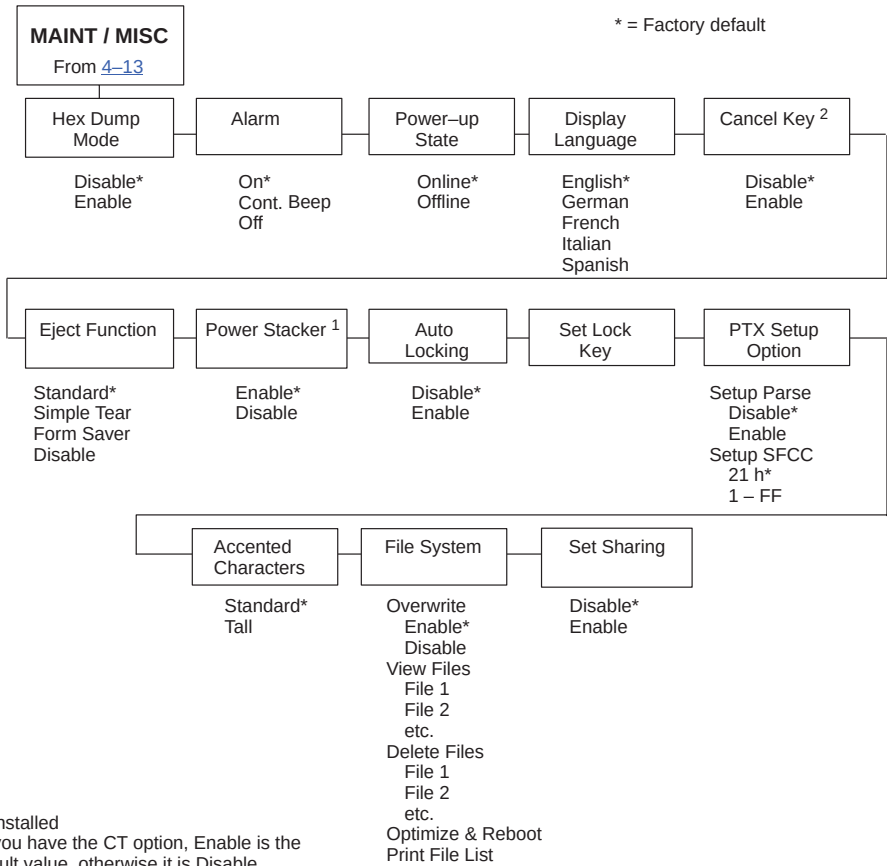
I-2/5 Checksum

This parameter defines the printer checksum calculation method for Interleaved 2 of 5 bar codes.

- Standard (3/1) – The odd numbers will be multiplied by 3 and the even numbers by 1 for calculation of the checksum.
- Special (4/9) – The odd numbers will be multiplied by 4 and the even numbers by 9 for calculation of the checksum.

NOTE: “Odd” refers to the 1st, 3rd, 5th... character in the bar code, while “even” refers to the 2nd, 4th, 6th... character in the bar code.

MAINT / MISC Menu



Hex Dump Mode

A hex code printout (or hex dump) translates all incoming data to hexadecimal equivalents. A hex dump lists each ASCII data character received from the host computer, together with its corresponding two-digit hexadecimal code. Hex dumps can be used to troubleshoot some types of printer data reception problems. [Figure 6-1](#) on page 6-4 shows a hex dump sample.

Alarm

You can set the printer so that an audible alarm sounds (3 beeps) when there is a fault, such as a paper jam. Continuous Beep sounds until clear is pressed.

Power-Up State

This parameter allows you to configure the printer to power-up in the offline or online state.

Display Language

This parameter chooses the language that will appear on the LCD – English, Spanish, French, Italian, or German.

Cancel Key

When enabled, the CANCEL key may be used to clear all data in the print buffer without printing any of the data.

Eject Function

This parameter enables and defines the eject function to be used. When activated, the function is used by holding down the VIEW/EJECT key. There are four options available: Disable, Standard, Simple Tear, and Form Saver.

- **Disable:** Prevents the use of the eject function.
- **Standard:** Slews the paper two 11" pages when VIEW/EJECT is pressed more than one second. Pressing it a second time retracts two pages.
- **Simple Tear:** Allows demand printing for specially designed forms which require a header of at least 2.66 inches in height. This leader prevents the paper from falling out of the tractors when the demanded sheet is removed. Press the VIEW/EJECT key. The printer slews the bottom of the last printed form to the tear position. Press the VIEW/EJECT button again. The paper reverses the exact amount of paper it slewed, placing the print position to the next available page. See [Appendix B](#).

- **Form Saver:** Allows near demand printing for forms that do not have pre-printed headers or special application designs. At least one blank page is required to load the paper so that it does not slip out of the tractors. For shorter form lengths, two or more blank pages may be necessary. When you press VIEW/EJECT, the bottom of the printed page is slewed to the tear position. When pressed again, the paper moves to the top of the next printable page available. See [Appendix B](#).

Power Stacker

This parameter allows you to enable or disable the SureStak™ Power Paper Stacker (provided you have this option).

Auto Locking

When enabled, this feature will automatically lock the ENTER key five minutes after the last front panel key press.

Set Lock Key

Normally, to lock or unlock the printer menu so different menu choices may be chosen, the UP and DOWN buttons are pressed at the same time. The Set Lock Key menu lets you choose different keys to lock or unlock the printer menu. You may chose almost any group of keys as the new lock and and unlock keys unless one of the keys is the ENTER key, or the keys chosen are already used for something else (such as soft reset). There is no limit to how many keys can be selected.

Follow these steps to select the new group of keys to lock or unlock the printer menu:

1. Press the ONLINE key to take the printer offline. The display should read "OFFLINE."
2. Press DOWN so the display reads "CONFIG. CONTROL."
3. Press the RIGHT key until the menu reads "MAINT/MISC."
4. Press DOWN again. The menu should read "Hex Dump Mode."
5. Press the RIGHT key until the display reads "Set Lock Key."

6. Press ENTER. The display reads, "Select a new lock key."
7. Press the combination of keys that you want to be the new lock key. Make sure you press all keys selected at the same time.
8. If the selection is valid, the display will read, "Enter the new lock key again." Press the same combination of keys a second time. If the selection is invalid, the display will read, "Invalid key selection." Return to step 6 and start over.
9. If the new lock key combination is entered again correctly, the display will read, "Lock key has been changed." If it was entered incorrectly, the display will read "Verification failed." Go to [step 6](#) and start over.
10. After entering the new lock combination successfully, press UP until the display reads "OFFLINE."
11. Press the ONLINE key to put the printer back online.

NOTE: The new lock combination will remain even if the printer is powered off and back on.

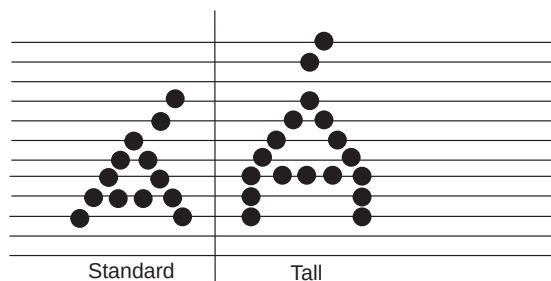
PTX SETUP Option

This option selects the special function control code for the PTX_SETUP command and functions.

- **Setup Parse** disables or enables the option.
- **Setup SFCC** sets the legal values from 1h – FF , which represent the ASCII code (in hexadecimal) of the character used as the SFCC for the PTX_SETUP command. The default value is 21h, which corresponds to the "!" character.

Accented Chars

Selects whether the accented characters are standard or tall. See below for an example of characters. Selecting tall will slow print speed and may cause the printer to back up.



File System

- **Overwrite** allows you to prevent files from being overwritten by disabling the overwrite function.
- **View Files** displays the list of files in the file system. Pressing the DOWN key displays the file size.
- **Delete Files** displays the list of files in the file system. Pressing the ENTER key deletes the file displayed on the front panel.
- **Optimize & Reboot** reclaims flash space from deleted flash files. After pressing ENTER, wait for the printer to reboot.
- **Print File List** prints a summary of the files stored in flash memory and several statistics on File System usage.

IMPORTANT ***Do not turn the printer off until it has completely rebooted and is either back online or offline.***

!

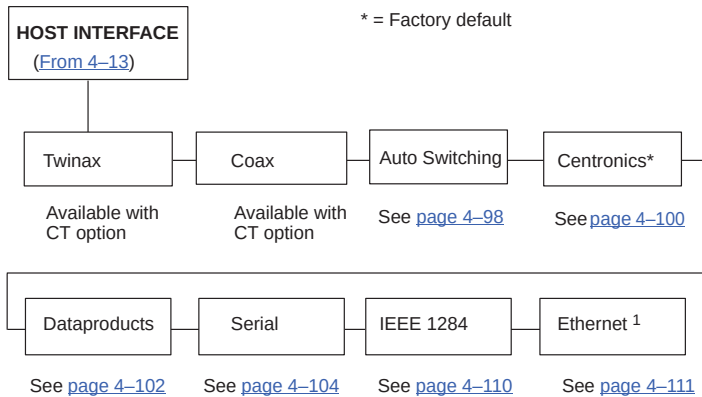
Set Sharing

This option allows character sets to be shared between the active LP+ protocol and the active IGP emulation. If CT is installed and active, selecting a character set in the CT sets that character set in the active IGP and LP+ protocols. (These changes will not be visible on the front panel.) If Set Sharing is not selected, only the LP+ will share the CT's character set.

Switching host interfaces from CT to Centronics when the Set Sharing is enabled will cause the LP+ character set to be set to the same character set of the active IGP, if possible.

In a non-CT system, changing characters sets in LP+ causes the active IGP to change to the same character set if the selected set exists in IGP. If the active IGP has no access to the selected set, no changes are made. Selecting a new character set in the active IGP causes the LP+ to change to the same character set if the selected character set exists in the active LP+ protocol. Not all sets are shared between emulations in the Standard group of character sets. As a result, selecting a set in the Standard group of LP+ or either IGP emulation may or may not cause the other emulation to have the same set.

HOST INTERFACE Menu



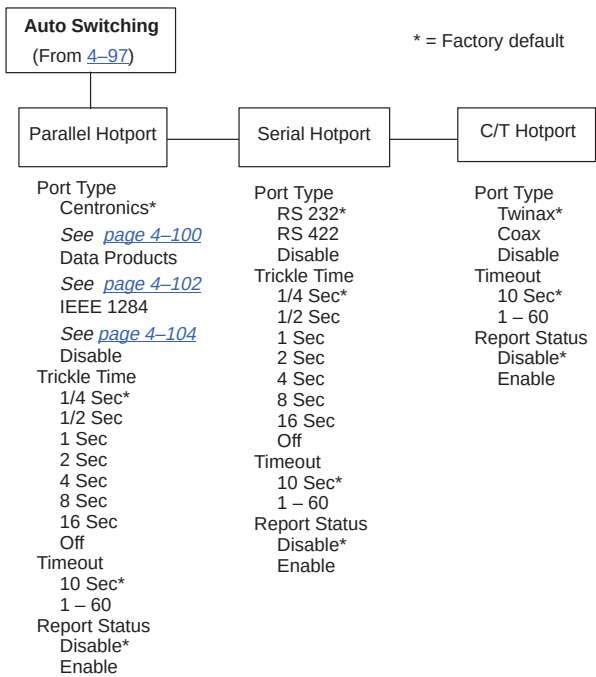
¹ Available when an Ethernet Adapter is present.

The Host Interface Menu enables you to select and configure one of seven types of interface between the printer and your host computer. The currently selected interface is indicated with an asterisk on the control panel message display. Each interface has its own submenu, with the set of associated interface parameters that you may configure.

IMPORTANT *When changing switching between Twinax, Coax, or Auto Switching, the printer will load the saved configuration. Thus, any setting performed before selection for those interfaces and not saved will be lost.*

!

Auto Switching Menu



Auto Switching

Gives the printer the ability to handle multiple data streams simultaneously. It allows the printer to service hosts attached to the serial, parallel, coax and twinax ports as if they were the only interface connected.

Port Type

Selects the type of parallel interface.

Trickle Time

This functionality prevents an attached host from timing out. In order to support this feature, the port has to be able to accept data from the host and store it for future use. The selected value is the time that the printer waits before getting the next byte of data from host. Set the value to be less than the host time out value, but the value should not be too much shorter so the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

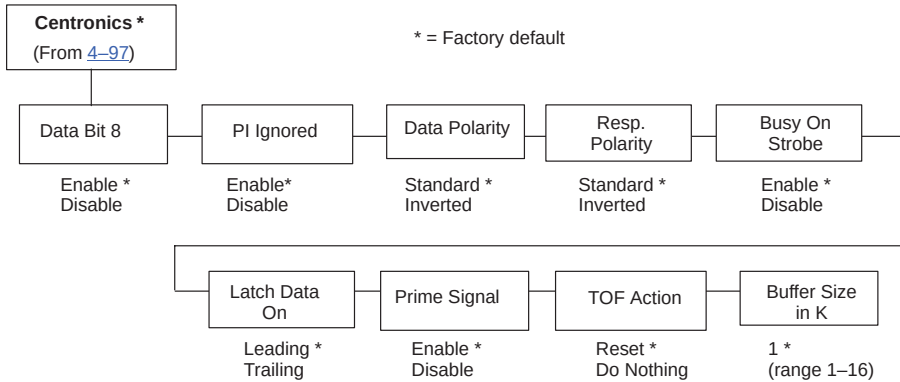
Timeout

This is the value used by the printer to time out from the current port and check the other ports for data to print. When the printer has not received data from the host after certain period of time, it needs to Timeout in order to service the other port.

Report Status

When fault occurs on the printer, only the active port reports the fault to the host. When this option is enabled, the port will report any fault even when it is not the current active port.

Centronics (Parallel) Submenu



Data Bit 8

The Data Bit 8 parameter allows access to the extended ASCII character set. Normally, this parameter is enabled. When this parameter is disabled, the printer interprets bit 8 of each incoming data character as a zero, regardless of its actual setting.

PI Ignored

The PI (Paper Instruction) signal is used to control vertical paper motion.

- Disable causes the printer to interpret the eight data lines as VFU commands when the PI signal is true.
- Enable ignores the PI signal and treats the data as characters or control codes.

Data Polarity

The Data Polarity parameter must be set to match the data polarity of your host computer.

- Standard does not expect the host computer to invert the data.
- Inverted expects the data received on the data lines from the host computer to be inverted. Ones become zeros, and vice-versa.

Response Polarity

The Response Polarity parameter must be set to match the response polarity of your host computer.

- Standard does not invert the response signal.
- Inverted inverts the response signal sent to the host computer.

Busy on Strobe

Busy on Strobe determines when the Busy signal is asserted.

- Enable asserts a busy signal after each character is received.
- Disable asserts a busy signal only when the print buffers are full.

Latch Data On

The Latch Data On parameter specifies whether the data is read on the leading or trailing edge of the data strobe signal.

- Leading
- Trailing

Prime Signal

Determines whether the parallel port will perform a warm start (a reboot) if the host asserts the Prime Signal.

- Enable (a warm start will occur)
- Disable (a warm start will not occur)

TOF Action

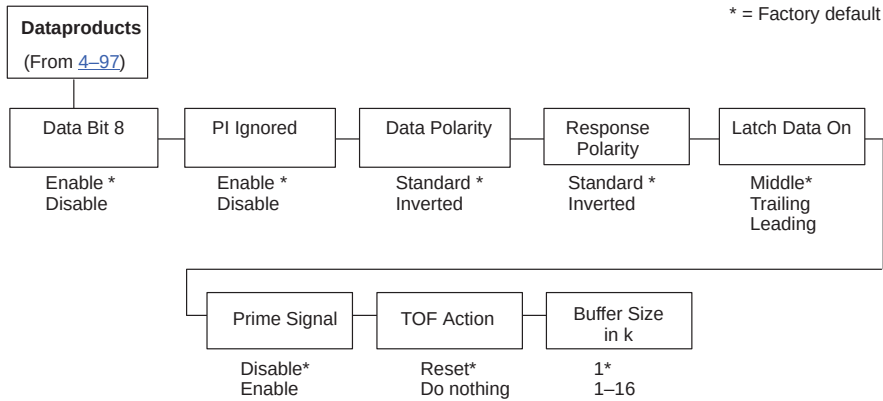
TOF (Top-of-Form) Action determines whether or not a form feed is performed before a warm start when the prime signal is asserted from the host. This setting is used only if the Prime Signal parameter is enabled.

- Reset (form feed on reset)
- None (no form feed on reset)

Buffer Size in K

This option configures the amount of memory allocated for the Centronics parallel port buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

Dataproducts (Standard & Longlines) Submenu



Data Bit 8

The Data Bit 8 parameter allows access to the extended ASCII character set. Normally, this parameter is enabled. When this parameter is disabled, the printer interprets bit 8 of each incoming data character as a zero, regardless of its actual setting.

PI Ignored

The PI (Paper Instruction) signal is used to control vertical paper motion.

- Enable causes the printer to interpret the eight data lines as DVFU commands when the PI signal is true.
- Disable ignores the PI signal and treats the data as characters or control codes.

Data Polarity

The Data Polarity parameter must be set to match the data polarity of your host computer.

- Standard does not expect the host computer to invert the data.
- Inverted expects the data received on the data lines from the host computer to be inverted. Ones become zeros, and vice-versa.

Response Polarity

The Response Polarity parameter must be set to match the response polarity of your host computer.

- Standard does not invert the response signal.
- Inverted inverts the response signal sent to the host computer.

Latch Data On

The Latch Data On parameter specifies whether the data is read on the leading, middle, or trailing edge of the data strobe signal.

- Leading
- Middle
- Trailing

Prime Signal

Determines whether the parallel port will perform a warm start (a reboot) if the host asserts the Prime Signal.

- Enable (a warm start will occur)
- Disable (a warm start will not occur)

TOF Action

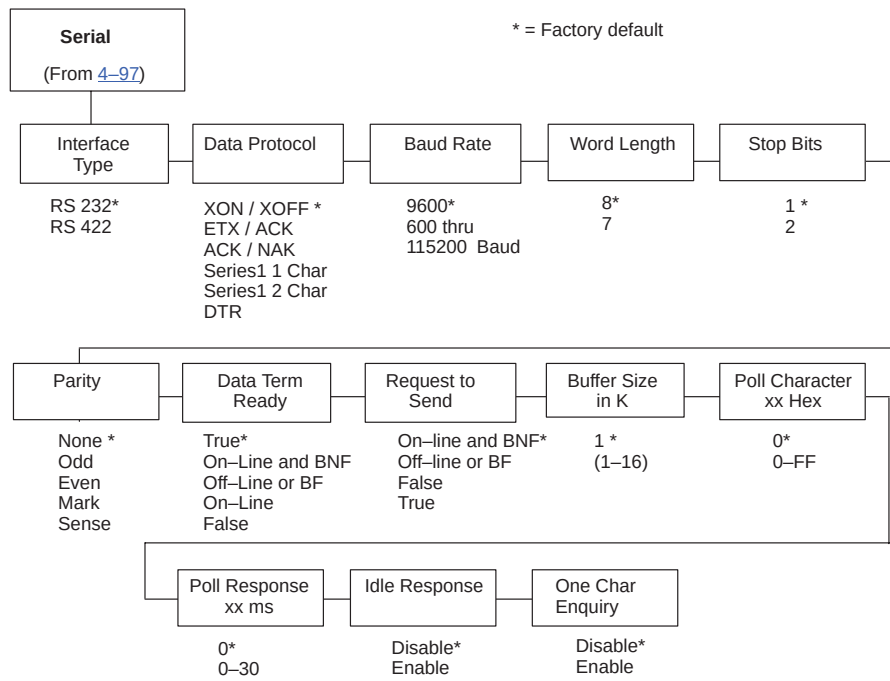
TOF (Top-of-Form) Action determines whether or not a form feed is performed before a warm start when the prime signal is asserted from the host. This setting is used only if the Prime Signal parameter is enabled.

- Reset (form feed on reset)
- Do nothing (no form feed on reset)

Buffer Size in K

This option configures the amount of memory allocated for the Dataproducts parallel port buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

Serial Submenu



Interface Type

This parameter allows you to select either the RS-232 or RS-422 serial port interface.

Data Protocol

You can select one of the following serial interface protocols to meet the host interface requirements.

- **XON / XOFF:** The printer controls the flow of communication from the host by turning the transmission on and off. In some situations, such as when the buffer is full or the timing of signals is too slow or too fast, the printer will tell the host to stop transmission by sending an XOFF

character. An XOFF character is sent when the number of empty bytes in the buffer is less than or equal to 25 percent of the buffer size. If the host keeps sending data after an XOFF is sent, the printer firmware will continue to send an XOFF for every 16 characters received. When cleared, the printer will resume receiving data (XON). The data does not have any End of Text codes; XON / XOFF is a non-block protocol.

- **ETX / ACK:** End of Text / Acknowledge. The host controls the flow of communication to the printer by sending a block of data and ending the block with an End of Text (ETX) signal. When the printer receives the ETX signal, it will acknowledge the ETX, thereby acknowledging it has received the entire block of data.
- **ACK / NAK:** ACK means acknowledge; the device acknowledges it has accepted a transmission. NAK means a negative acknowledge; the device did not receive the transmission.
- **DTR:** The printer controls the data flow by sending this hardware signal to the host. If there is enough room in the printer buffer, the printer will send a high signal; if the buffer is full the printer will send a low signal. DTR tells the host if it is safe to send more data. (If the host sends data during an unsafe condition, data will be lost.) DTR is not available when RS-422 is selected.
- **SERIES 1 1 CHAR:** The printer controls the flow of communication from the host by turning the transmission on and off using response characters sent to the host. If the number of valid bytes in the buffer reaches 75 percent of the buffer size, the online or offline and buffer full response character is sent. If the buffer is completely full, an online or offline buffer full response is sent every time a character is sent from the host. Whenever the printer state changes to online or offline, the appropriate response character is sent. If the idle response option is enabled, the printer will send a response character every two seconds while the number of valid bytes in the buffer is less than 75 percent of the buffer size. If a poll character is received (configurable from the Poll Character xx Hex option on the front panel from 0 through FF hex), the printer will send a response character n milliseconds later (configurable

from the Poll Character xx MS on the front panel from 0 through 30). This n milliseconds is called the poll delay. The poll character will be removed from the input data stream and will not be processed. This may cause problems with the transmission of binary data (e.g. control codes, bit image, etc.). If a poll delay is started due to the receipt of a poll character and another poll character is received, the second poll character has no effect, and is removed from the input data stream. If a transition (from buffer full to empty or online to offline) occurs during a poll delay, the new printer state will be sent at the end of the poll delay. The response characters are described in the following table:

Printer State	Response
Online and Buffer Empty	CR
Online and Buffer Full	3
Offline and Buffer Empty	0
Offline and Buffer Full	2

- **SERIES 1 2 CHAR:** – This protocol behaves exactly the same as the Series1 Char except there is a two-character response to the host. The response characters are described in the following table:

Printer State	Response
Online and Buffer Empty	1 CR
Online and Buffer Full	3 CR
Offline and Buffer Empty	0 CR
Offline and Buffer Full	2 CR

Baud Rate

This parameter sets the baud rate of the serial interface in the printer. Baud rate is the speed at which serial data is transferred between the host computer and the printer. The choices for the RS–232 and RS–422 interfaces are 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115K Baud.

NOTE: If you select a baud rate that is greater than 19200, you may need to use RS–422 to prevent data loss. You may need to increase the Buffer Size in K parameter from the default (1 Kbyte), to improve performance.

Word Length

The Data Bits parameter sets the length of the serial data word. The length of the data word can be set to 7 or 8 bits, and must match the corresponding data bits setting in the host computer.

Stop Bits

The Stop Bits parameter sets the number of stop bits in the serial data word. Either one or two stop bits can be selected. The setting must match the corresponding stop bit setting in the host computer.

Parity

The Parity parameter can be set for odd parity, even parity, mark, sense, or no parity. The setting must match the corresponding parity setting in the host computer.

Data Terminal Ready

This configuration is part of hardware flow control and determines when the Data Terminal Ready (DTR) signal is generated. This signal indicates whether or not the printer is ready to receive data.

- True continuously asserts the DTR signal.
- False never asserts the DTR signal.
- On-Line and BNF (buffer not full) asserts the DTR signal when the printer is online and the internal serial buffer is not full.
- Off-Line or BF (buffer full) asserts the DTR signal when the printer is offline or the internal serial buffer is full.
- On-Line asserts the DTR signal when the printer is online.

Request to Send

This configuration is part of hardware flow control and determines when the Request to Send (RTS) signal is generated. This signal indicates whether or not the printer is ready to receive data.

- True continuously asserts the RTS signal.
- False never asserts the RTS signal.
- On-Line and BNF asserts the RTS signal when the printer is online and the internal serial buffer is not full.
- Off-Line or BF asserts the RTS signal when the printer is offline or the internal serial buffer is full.

Buffer Size in K

This option configures the amount of memory allocated for the serial port buffer. You may specify between 1 and 16 Kbytes, in 1-Kbyte increments.

NOTE: If you select a baud rate that is 19200 or greater, you may need to increase the Buffer Size in K parameter from the default to 16 Kbytes to improve performance.

Poll Character

This option is for the Series 1 protocol. Whenever the printer receives this character, it sends a response to the host indicating the current state of the printer (see Series 1 protocol). It may be configured from 0 through FF hexadecimal.

Poll Response

This option is for the Series 1 protocol. After receiving a poll character, the printer will wait the poll response number of milliseconds before sending the response. It may be configured from 0 through 30.

Idle Response

This option is for the Series 1 protocol. When enabled, the printer will send a response character every two seconds while the number of valid bytes in the buffer is less than 75 percent of the buffer size.

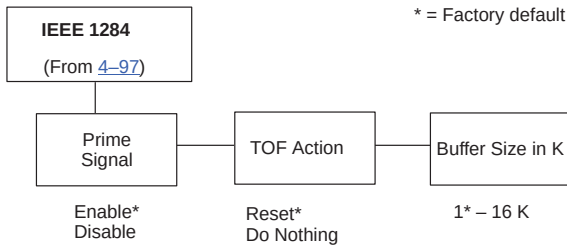
One Char Enquiry

The One Char Enquiry mode uses the Poll Character to detect a request from the host and sends a response back to the host. This option also allows you to turn on and off this feature.

Printer State	Response (hex)
Online and Buffer Not Full	20
Online and Buffer Full	21
Offline and Buffer Not Full	22
Offline and Buffer Full	23

The Poll Character is removed from the data stream. If the data is set to ETX/ACK, ACK/NAK, or Series 1, One Char Enquiry is automatically disabled.

IEEE 1284 Parallel (Bidirectional) Submenu



The IEEE 1284 interface is faster and more versatile than Centronics and supports bidirectional communication. Chapter 5 discusses the available modes (Compatibility, Nibble, and Byte) in more detail. Configuration of this interface is controlled from the host.

Prime Signal

Determines whether the parallel port will perform a warm start (a reboot) if the host asserts the Prime Signal.

- Enable (a warm start will occur)
- Disable (a warm start will not occur)

TOF Action

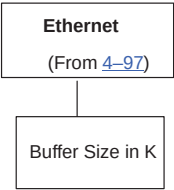
TOF (Top-of-Form) Action determines whether or not a form feed is performed before a warm start when the prime signal is asserted from the host. This setting is used only if the Prime Signal parameter is enabled.

- Reset (form feed on reset)
- None (no form feed on reset)

Buffer Size in K

This option configures the amount of memory allocated for the IEEE 1284 parallel port buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

Ethernet Submenu



* = Factory default

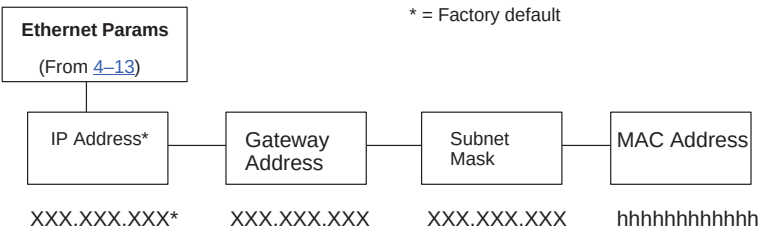
1* – 16 K

The Ethernet interface allows you to locate the printer on a LAN rather than hook the host directly into the printer. The detailed configuration of this option is given in the [PrintNet Network User's Manual](#).

Buffer Size in K

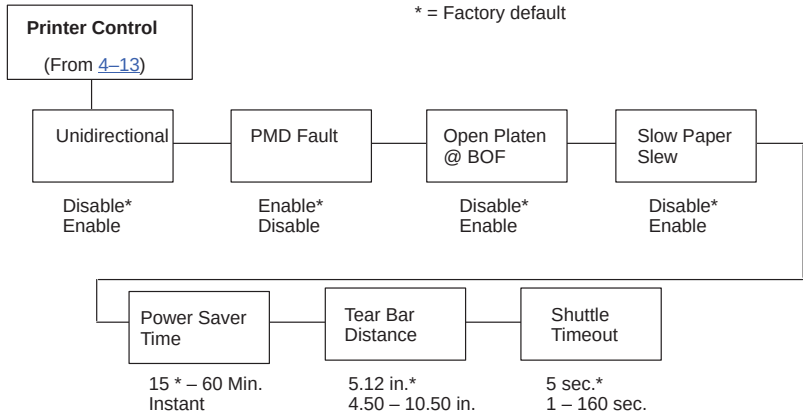
This option configures the amount of memory allocated for the Ethernet buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

ETHERNET PARAMETERS Menu



These parameters can be accessed through the front panel by using the control panel with this menu structure. For further information regarding Network capabilities, refer to [Network User's Manual](#).

PRINTER CONTROL Menu



Unidirectional

The Unidirectional feature affects both print quality and printing speed. By setting this feature, you can configure the printer to print in both directions of the shuttle sweep (bidirectional), or to print in one direction only (unidirectional).

Although enabling this feature reduces print speed, it enhances the vertical alignment of dots and produces cleaner, sharper bar codes and text. Choices include the following:

- **Disable:** The printer will print all data in both directions of the shuttle sweep (bidirectional printing). This choice produces higher printing speed.
- **Enable:** The printer will print all data in only one direction of the shuttle sweep (unidirectional printing). This choice produces higher print quality.

PMD (Paper Motion Detection) Fault

The PMD, or Paper Motion Detection, feature can be enabled or disabled. If PMD is enabled and a paper jam occurs, an audible alarm beeps, "CLEAR PAPER

JAM” appears on the message display, and the printer stops printing. Disable PMD only if special paper requires it.

CAUTION



Once PMD is disabled, paper motion is not monitored. If a paper jam occurs, the printer ignores the condition and continues to print, possibly causing damage to the printer.

Open Platen @ BOF (Bottom of Form)

Some special forms have perforation areas that are too thick to pass through the print station. This parameter, when enabled, opens and closes the platen when the perforations move across the platen. When enabling this parameter, you *must* set the forms length to match the physical distance between perforations.

Slow Paper Slew

This parameter affects the speed at which paper advances into the stacking area of the printer. The speed may be slowed by enabling this feature.

- **Disable:** The printer will slew and stack paper at maximum speed.
- **Enable:** Causes the paper to stack at a slower rate. This ensures that certain forms will stack more neatly.

Power Saver Time

The time interval you specify for this parameter sets the amount of idle time before the printer goes into Power Saver mode. When Instant is chosen, the printer goes into Power Saver mode as soon as it is able to stop the shuttle properly. The time allotted to perform this function is dependant on the shuttle timeout value which can be set in the menu.

Pressing any key will remove the power saver message from the control panel. Sending a print job to the printer will turn off power saver mode.

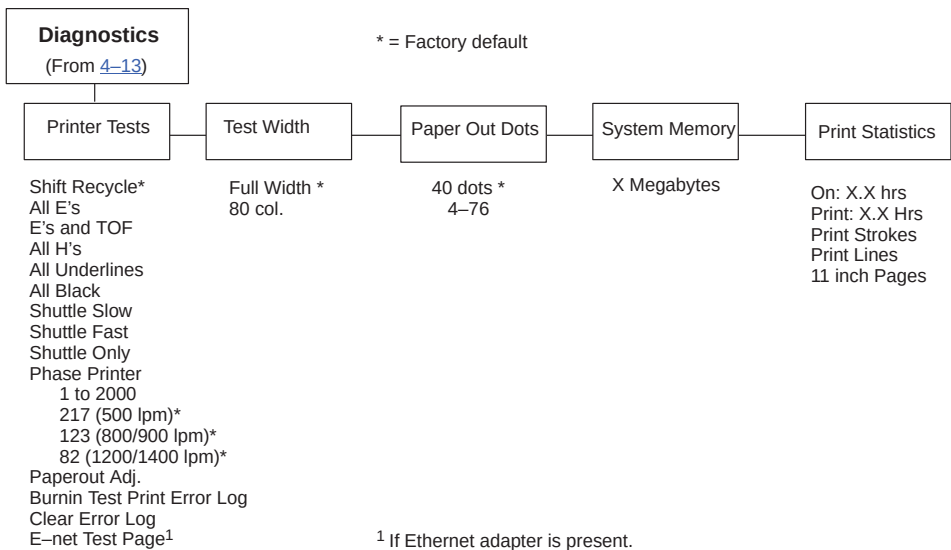
Tear Bar Distance

This option allows fine and course adjustment of the tear bar position. For a printer with a quick access cover using the front paper exit, the default (5.12 inches) is used. You can specify 4.5 to 10.5 inches in .01 inch increments to accommodate variations in cover and form design. If the printer is not equipped with a quick access cover, or when rear paper exit is desired, the tear distance should be set to accommodate the rear position. This requires setting the Tear Bar Distance to 9.92 inches.

Shuttle Timeout

This refers to the amount of time the shuttle continues moving after no data is received. If your host is slow, setting the number to a higher value will prevent the printer from spending time shuttling up and down between data bursts.

DIAGNOSTICS Menu



Printer Tests

The printer tests are used to check the print quality and operation of your printer.

NOTE: Your authorized service representative will typically run these tests. They are described in more detail in the [Maintenance Manual](#).

- **Shift Recycle** – A sliding alphanumeric pattern that identifies missing or malformed characters, improper vertical alignment, or vertical compression.
- **All E's** – A pattern of all uppercase E's that identifies missing characters, misplaced dots, smeared characters, improper phasing problems, or light/dark character variations.
- **E's plus TOF** – A pattern of all E's followed by a form feed to the next page top-of-form, that identifies paper motion or feeding problems.
- **All H's** – A pattern of all uppercase H's used to detect missing characters, misplaced dots, smeared characters, or improper phasing.

- **All Underlines** – An underline pattern useful for identifying hammer bank misalignment.
- **All Black** – A condition where all dot positions are printed, creating a solid black band.
- **Shuttle Slow** – Verifies proper operation by exercising shuttle and ribbon motion at low speed.
- **Shuttle Fast** – Verifies proper operation by exercising shuttle and ribbon motion at fast speed.
- **Shuttle Only** – Exercises only the shuttle at fast speed.
- **Phase Printer** – Checks for wavy print. The initial phase value is set in the factory. Run the test and check the quality. (The phase value prints on the left margin.) If the print looks too wavy, change the Phase Value parameter while the test is running. While the phase printer test runs, press the DOWN key. To change the value, press the PREV or NEXT key until the desired value displays and then press ENTER.
- **Paperout Adjust** – This test verifies the current Paper Out Dots setting, which determines where the last line of text will print when there is a paper out condition. Setting this parameter correctly prevents printing on the platen from occurring.
- **Burnin Test** – Reserved for factory use.
- **Print Error Log** – Prints the current log of errors. Most non-routine faults (ribbon stall, voltage faults) are stored in the error log.
- **Clear Error Log** – Clears entries in the error log.
- **E-net Test Page** – Prints the Ethernet statistics stored on the Ethernet adapter (if present).

Test Width

This parameter permits you to run the self-tests at full width or 80 columns.

Paper Out Dots

This parameter is used to adjust the paper out distance from the perforation; you can specify where the last line on the page will print when there is a paper out condition. Setting this parameter correctly prevents printing on the platen.

Only authorized service representatives should set this parameter.

System Memory

This parameter displays the amount of RAM installed.

Print Statistics

You can view various printer statistics, such as hours of usage, and refer to these figures for preventive maintenance purposes. Printer statistics accumulate continuously; they do not reset when you turn off the printer. All of the printer statistics are set to zero at the factory after burn-in testing.

On: The cumulative time in hours the printer has been powered on. The range is 0 to 30,000 hours.

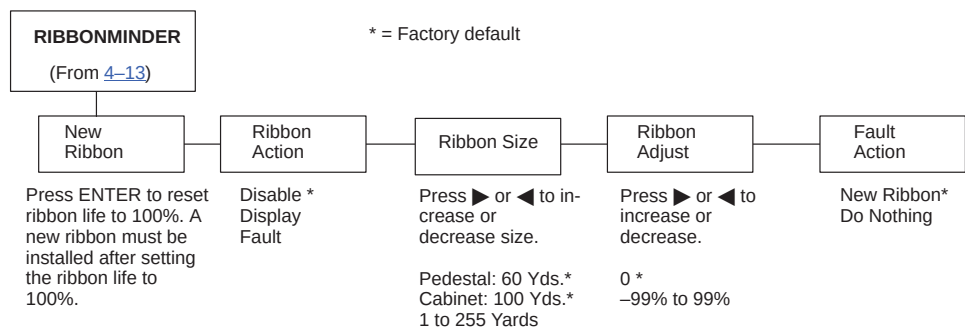
Print: The cumulative time in hours the printer has actually been printing. The range is 0 to 30,000 hours.

Print Strokes: The cumulative number of back-and-forth shuttle strokes the printer has printed during normal printer operation. The range is 0 to 2,147,483,647 shuttle strokes.

Print Lines: The cumulative number of lines the printer has printed. The range is 0 to 2,147,483,647 print lines.

11 inch Pages: The cumulative number of pages the printer has printed. The range in print pages is 0 to 2,147,483,647 total inches of paper movement divided by 11.

RIBBONMINDER™ Menu



New Ribbon

Whenever you install a new ribbon, you must reset the ribbon life to 100%. The New Ribbon option is where you reset the ribbon display.

Ribbon Action

This option allows you to perform three functions: activate the RibbonMinder ink consumption display, disable the ink consumption display, and flash a fault message when the display reaches 0%. Displaying the ribbon ink consumption allows you to monitor the percentage of ink left in the ribbon. Disabling the ink consumption monitor removes the visual display, but allows RibbonMinder to continue monitoring how much ink is left in the ribbon. The Fault option activates a flash message when the display reaches 0%.

Ribbon Size

The standard ribbon size is 60 yards for the pedestal model, 100 yards for the cabinet model; these are the factory default settings. You can use the Ribbon Size option to specify the ribbon length in increments of one yard with a maximum of 255 yards.

Ribbon Adjust

Enables you to print more or less pages before the display reaches 0%. If the ribbon normally prints 1000 pages before reaching 0%, configuring the Ribbon

Adjust to 10% will print 10% more pages before reaching 0%. A –10% will cause the display to reach 0% after 10% fewer pages. The setting can range from –99% through 99%.

Fault Action

When set to New Ribbon, changing the ribbon while in RIBBON INK OUT / CHANGE RIBBON fault will reset the ribbon life to 100%, just as if the new ribbon menu option was executed. When set to Do Nothing, the ribbon life may only be reset through the New Ribbon menu option.

RibbonMinder is a user–definable software feature that determines when a ribbon should be changed. It does this by monitoring ink consumption and alerts you when the print quality may fall below a level that you designate. This is especially important if you are printing bar codes to be scanned.

ON LINE 100% <printer emulation>
--

As printing continues, the percentage of usable ink in the ribbon decreases (percentage ranges from 100% through –99%):

ON LINE 74% <printer emulation>

Ribbon ink being consumed

ON LINE 8% <printer emulation>
--

Ribbon life approaching end

When 0% usable ink appears, the printer is typically configured to stop printing and display the following message:

RIBBON INK OUT CHANGE RIBBON

NOTE: Once you have set up options for RibbonMinder, it works without attention. When you begin printing with RibbonMinder enabled, the message display shows a ribbon life value of 100%. The ribbon life decreases as the ink is consumed.

RibbonMinder Fault

By pressing the CLEAR key, you clear the fault which will allow the printer to continue printing for an additional two minutes. This allows you to complete a nearly finished print job before changing the ribbon.

After the two-minute period has elapsed, the fault will reoccur if the Ribbon Action remains set on FAULT. If the Ribbon Action is changed to DISABLE or DISPLAY within the two-minute period, the fault will not reoccur. If you do not want to change the ribbon at this time, you may disable RibbonMinder. If the ribbon is worn, the "Change Ribbon" message will reappear once the function is enabled again, and the printer status indicator will flash until the ribbon is changed. If a fault message is displayed on the control panel and the ribbon is changed, the ribbon percentage automatically resets back to 100%. If the message display indicates the need to install a new ribbon and your print job is one page short of completion, press CLEAR and then ON LINE to print the last page. Otherwise, you may continue your print job at the end of this procedure. The fault will occur again two minutes after clearing the fault.

NOTE: If the fault message appears on the control panel and the ribbon is changed, the display will automatically reset to 100%.

5 Interfaces

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Overview

This chapter describes the host interfaces provided with the printer. The printer interface is the point where the data line from the host computer plugs into the printer. The interface processes all communications signals and data to and from the host computer. Communication signals and data may be sent over parallel or serial lines.

IMPORTANT *Only one interface can be used at a time, and it must be selected via the configuration menu.*

!

This chapter describes the interfaces provided with the printer.

Standard Host Interfaces:

- Centronics parallel
- IEEE 1284 parallel bidirectional
- High Speed Serial Port (RS–232/422)

Optional Host Interfaces:

- Coax / Twinax
- Dataproducts Long Lines
- Dataproducts parallel
- Ethernet 10Base T
- Ethernet 10Base 2

In addition to descriptions for the multi–line interfaces, this chapter also provides instructions for configuration of terminating resistors for the parallel interfaces.

Dataproducts Long Lines Interface

**Table 5–1. Dataproducts Long Lines Interface Connector Pin Assignments
(with a 50-pin AMP HDH-20 Data Cable Connector)**

Input Signals		Output Signals		Miscellaneous	
Signal	Pin	Signal	Pin	Signal	Pin
DATA LINE 1	19	READY	22	CABLE VERIFY	45, 46
Return	3	Return	6		
DATA LINE 2	20	ONLINE	21	GROUND	39
Return	4	Return	5		
DATA LINE 3	1	DEMAND/DATA REQUEST	23	TEST	12
Return	2	Return	7		
DATA LINE 4	41	PARITY ERROR	27		
Return	40	Return	11		
DATA LINE 5	34				
Return	18				
DATA LINE 6	43				
Return	42				
DATA LINE 7	36				
Return	35				
DATA LINE 8	28				
Return	44				
DATA STROBE	38				
Return	37				
PAPER INSTRUCTION	30				
Return	14				
BUFFER CLEAR	31				
Return	15				
Note: Pins not listed are not connected.					

The length of the data cable from the host computer to the printer must not exceed 500 feet (150 meters).

Dataproducts Long Lines Interface Signals

Dataproducts-compatible interface signals between the host computer and the printer are defined as follows:

Data Lines 1 through 8 — Provide eight standard or inverted levels from the host that specify character data, plot data, or a control code. Data Line 8 allows access to the extended ASCII character set. You can enable or disable this line via the Data Bit 8 parameter on the Dataproducts submenu (Chapter 4).

Data Strobe — Carries a high true pulse from the host when data is ready. The data strobe remains high until the Data Request line goes false. The active edge of the strobe signal can be configured as leading, middle (default), or trailing.

Paper Instruction (PI) — Carries a DVFU signal from the host with the same timing and polarity as the data lines.

Ready — Carries a high true signal from the printer when AC power and DC voltages are present, paper is loaded properly, and the printer is not in a check condition.

Online — Carries a high true signal from the printer when the Ready Line is true and the ON LINE key on the control panel has been pressed. When the printer is in online mode, it may accept data from the host.

Demand/Data Request — Carries a high true signal from the printer when the printer is ready to accept character data from the host. This signal changes to false shortly after the leading edge of the data strobe signal.

Cable Verify — Two pins on the interface connector are jumpered together to allow the user to verify proper installation of the interface connector.

Buffer Clear — A high true level from the host to indicate the printer should perform a reboot.

Test — This signal is connected to +5 volts through a 470 ohm resistor.

Parity Error — Always carries a low false signal from the printer indicating there is no parity error.

Dataproducts Parallel Interface

**Table 5–2. Dataproducts Parallel Interface Connector Pin Assignments
(with a 50-pin AMP HDH-20 Data Cable Connector)**

Input Signals		Output Signals		Miscellaneous	
Signal	Pin	Signal	Pin	Signal	Pin
DATA LINE 1	19	READY	22	CABLE VERIFY	45, 46
Return	3	Return	6		
DATA LINE 2	20	ONLINE	21	GROUND	39
Return	4	Return	5		
DATA LINE 3	1	DEMAND/DATA REQUEST	23		
Return	2	Return	7		
DATA LINE 4	41	PARITY ERROR	27		
Return	40	Return	11		
DATA LINE 5	34				
Return	18				
DATA LINE 6	43				
Return	42				
DATA LINE 7	36				
Return	35				
DATA LINE 8	28				
Return	44				
DATA STROBE	38				
Return	37				
PAPER INSTRUCTION	30				
Return	14				
BUFFER CLEAR	31				
Return	15				
Note: Pins not listed are not connected.					

The length of the data cable from the host computer to the printer must not exceed 40 feet (12 meters).

Dataproducts Parallel Interface Signals

Data Lines 1 through 8 — Provide eight standard or inverted levels from the host that specify character data, plot data, or a control code. Data Line 8 allows access to the extended ASCII character set. You can enable or disable this line via the Data Bit 8 parameter on the Dataproducts submenu (Chapter 4).

Data Strobe — Carries a high true pulse from the host when data is ready. The data strobe remains high until the Data Request line goes false. The active edge of the strobe signal can be configured as leading, middle (default), or trailing.

Paper Instruction (PI) — Carries a DVFU signal from the host with the same timing and polarity as the data lines.

Ready — Carries a high true signal from the printer when AC power and DC voltages are present, paper is loaded properly, and the printer is not in a check condition.

Online — Carries a high true signal from the printer when the Ready Line is true and the ON LINE key on the control panel has been pressed. When the printer is in online mode, it may accept data from the host.

Demand/Data Request — Carries a high true signal from the printer when the printer is ready to accept character data from the host. This signal changes to false shortly after the leading edge of the data strobe signal.

Cable Verify — Two pins on the interface connector are jumpered together to allow the user to verify proper installation of the interface connector.

Buffer Clear — A high true level from the host to indicate the printer should perform a reboot.

Parity Error — Always carries a low false signal from the printer indicating there is no parity error.

Centronics Parallel Interface

Table 5–3. Centronics Interface Connector Pin Assignments

Input Signals		Output Signals		Miscellaneous	
Signal	Pin	Signal	Pin	Signal	Pin
DATA LINE 1 Return	2 20	ACKNOWLEDGE Return	10 28	CHASSIS GROUND	17
DATA LINE 2 Return	3 21	ONLINE Return	13 28	GROUND	30
DATA LINE 3 Return	4 22	FAULT Return	32 29	Spares	14
DATA LINE 4 Return	5 23	PAPER EMPTY Return	12 28	No connection	34, 35, 36
DATA LINE 5 Return	6 24	BUSY Return	11 29	+5 Volts	18
DATA LINE 6 Return	7 25				
DATA LINE 7 Return	8 26				
DATA LINE 8 Return	9 27				
DATA STROBE Return	1 19				
PAPER INSTRUCTION Return	15 29				
PRIME Return	31 30				

The length of the data cable from the host computer to the printer must not exceed 15 feet (5 meters).

Centronics Interface Signals

Data Lines 1 through 8 — Provide eight standard or inverted levels from the host that specify character data, plot data, or a control code. Data Line 8 allows access to the extended ASCII character set. You may enable or disable this line via the Data Bit 8 parameter on the Centronics submenu (see Chapter 4).

Data Strobe — Carries a low true, 100 ns minimum pulse from the host that clocks data into the printer.

Acknowledge — A low true pulse from the printer indicating the character or function code has been received and the printer is ready for the next data transfer.

Online — A high true level from the printer to indicate the printer is ready for data transfer and the ON LINE key on the control panel has been activated. When the printer is in online mode, it may accept data from the host.

Paper Empty (PE) — A high true level from the printer to indicate the printer is in a paper empty or paper jam fault.

Busy — A high true level from the printer to indicate the printer cannot receive data.

Prime — A high true level from the host to indicate the printer should perform a warm start (printer is reset to the power-up configuration values).

Paper Instruction (PI) — Carries a CVFU signal from the host with the same timing and polarity as the data line.

Fault — A low true level from the printer indicates a printer fault.

IEEE 1284 Parallel Interface

Operating Modes

The 1284 supports three operating modes, which are determined by negotiation between the printer and the host.

Compatibility Mode

This mode provides compatibility with Centronics-like host I/O (see [Table 5-3](#)). Data is transferred from the host to the printer in 8-bit bytes over the data lines.

Compatibility Mode can be combined with Nibble and Byte Modes to provide bidirectional communication.

Nibble Mode

Eight bits equals one byte. When a byte of data is sent to the printer, the eight bits are sent over eight data lines.

Some devices cannot send data over their eight data lines. To bypass this, the 1284 permits data to be sent as half a byte over four status lines. (Half a byte equals one nibble.) Two sequential four-bit nibbles are sent over the lines.

Data is transferred from printer to host in four-bit nibbles over the status lines, and the host controls the transmission.

Byte Mode

The printer and host send data to each other along eight data lines (one bit per line).

If bidirectional communication is supported by the printer and the host, the host will take control of the data transfer.

Table 5–4. 1284 Signals

Pin	Source of Data	Type of Mode		
		Compatible	Nibble	Byte
1	Host	nStrobe	HostClk	Host/Clk
2	Host/Printer	Data 1 (LSB)		
3	Host/Printer	Data 2		
4	Host/Printer	Data 3		
5	Host/Printer	Data 4		
6	Host/Printer	Data 5		
7	Host/Printer	Data 6		
8	Host/Printer	Data 7		
9	Host/Printer	Data 8 (MSB)		
10	Printer	nAck	PtrClk	PtrClk
11	Printer	Busy	PtrBusy	PtrBusy
12	Printer	PError	AckDataReq	AckDataReq
13	Printer	Select	Xflag	Xflag
14	Host	nAutoFd	Host Busy	HostAck
15		Not Defined		
16		Logic Gnd		
17		Chassis Gnd		
18	Printer	Peripheral Logic High		
19		Signal Ground (nStrobe)		
20		Signal Ground (Data 1)		
21		Signal Ground (Data 2)		
22		Signal Ground (Data 3)		
23		Signal Ground (Data 4)		
24		Signal Ground (Data 5)		
25		Signal Ground (Data 6)		
26		Signal Ground (Data 7)		
27		Signal Ground (Data 8)		
28		Signal Ground (PError, Select, nAck)		
29		Signal Ground (Busy, nFault)		

Table 5–4. 1284 Signals (continued)

30		Signal Ground (nAutoFd, nSelectIn, nInit)		
31	Host	nInit		
32	Printer	NFault	nDataAvail	aDataAvail
33		Not Defined		
34		Not Defined		
35		Not Defined		
36	Host	nSelectIn	1284 Active	1284 Active

NOTE: The length of the data cable from the host computer to the printer should not exceed 10 meters (32 feet).

Signals

Host Clock / nWrite — Driven by host. Data transferred from host to printer. When printer sends data, two types are available. If Nibble Mode, signal is set high. If Byte Mode, signal is set low.

Data 1 through Data 8 — These pins are host-driven in Compatibility Mode and bidirectional in Byte Mode. They are not used in Nibble Mode. Data 1 is the least significant bit; Data 8 is the most significant bit.

Printer Clock / Peripheral Clock / Interrupt — Driven by the printer. A signal from the printer indicating the character or function code has been received and the printer is ready for the next data transfer.

Printer Busy / Peripheral Acknowledge / nWait — Driven by the printer. Indicates the printer cannot receive data. (Data bits 4 and 8 in Nibble Mode.)

Acknowledge Data Request / nAcknowledge Reverse — Driven by the printer. Indicates the printer is in a fault condition. (Data bits 3 and 7 in Nibble Mode.)

Xflag — Driven by the printer. A high true level indicating the printer is ready for data transfer and the printer is on-line. (Data bits 2 and 6 in Nibble Mode.)

Host Busy / Host Acknowledge / NDStrobe — Driven by the host. Activates auto-line feed mode.

Peripheral Logic High — Driven by the printer. When the line is high, the printer indicates all of its signals are in a valid state. When the line is low, the printer indicates its power is off or its signals are in an invalid state.

nReverse Request — Driven by the host. Resets the interface and forces a return to Compatibility Mode idle phase.

nData Available / nPeripheral Request — Driven by the printer. Indicates the printer has encountered an error. (Data bits 1 and 5 in Nibble Mode.)

1284 Active / nAStrobe — Driven by the host. A peripheral device is selected.

Host Logic High — Driven by the host. When set to high, the host indicates all of its signals are in a valid state. When set to low, the host indicates its power is off or its signals are in an invalid state.

nInit — Resets init interface from the host.

Terminating Resistor Configurations

The factory equips the printer with several resistors that are used for parallel interface configurations and are suitable for most applications. These 470 ohm pull-up and 1K ohm pull-down terminating resistors are located at RP1 and RP2, shown in Figure 5–1.

If the values of these terminating resistors are not compatible with the particular interface driver requirements of your host computer, you may need to install resistors with different pull-up and pull-down values.

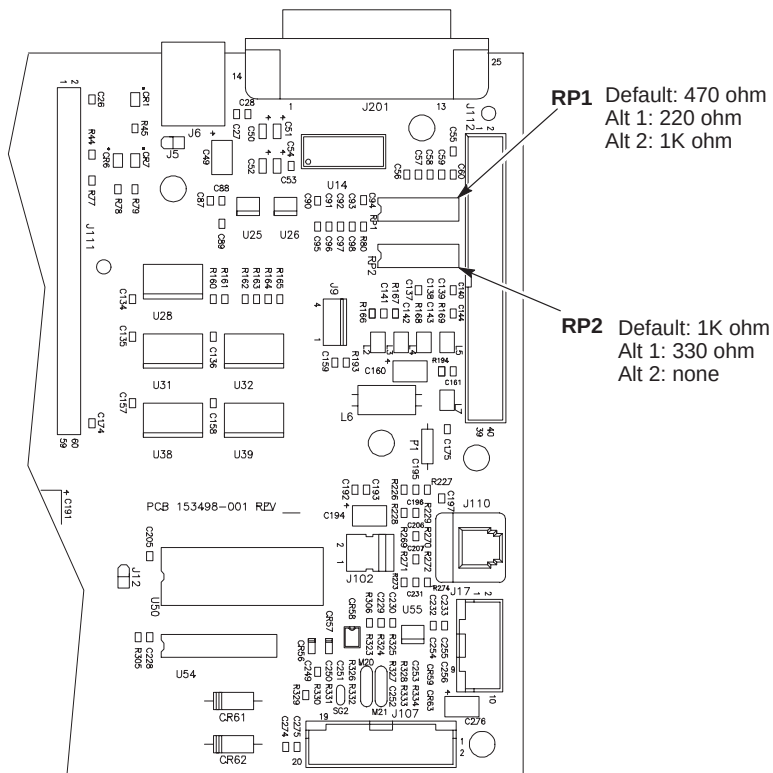


Figure 5–1. Resistor Locations

The shipping kit for this printer includes 220 ohm pull-up and 330 ohm pull-down alternate terminating resistors. If you install the 220 ohm pull-up resistor, you must also install the 330 ohm pull-down resistor. The following table lists the three terminating resistor configurations you can install:

Configuration	Pull-Up (RP1)	Pull-Down (RP2)
Factory Default	470 ohm	1K ohm
Alternate 1	220 ohm	330 ohm
Alternate 2	1K ohm	none

Removal and Installation

The procedure for removing and installing terminating resistors is provided in your [Maintenance Manual](#).

IMPORTANT *This is an involved maintenance procedure; only a trained technician should perform this procedure.*

!

RS-232 and RS-422 Serial Interfaces

NOTE: The RS-232 and RS-422 serial interface circuit characteristics are compatible with the Electronic Industry Association Specifications EIA-232-E and EIA-422-B.

The RS-232 and RS-422 serial interfaces enable the printer to operate with bit serial devices that are compatible with an RS-232 controller. The input serial data transfer rate (in baud) is selectable from the printer's control panel. Baud rates of 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115K baud rates are available.

NOTE: If you select a baud rate that is greater than 19200, you may need to use RS-422 to prevent data loss. You may also need to increase the Buffer Size in K parameter from the default (1 Kbyte), to improve performance.

The length of the data cable from the host computer to the printer must not exceed 50 feet (15 meters) for RS-232 or 4000 feet (1220 meters) for RS-422. (A copper conductor, twisted-pair telephone cable with a shunt capacitance of 16 pF/foot (52.5 pF/meter) terminated in a 100 ohm resistive load must be used for the RS-422.)

Table 5–5. RS–232 Serial Interface Connector Pin Assignments

Input Signals		Output Signals		Miscellaneous	
Signal	Pin	Signal	Pin	Signal	Pin
Receive Data (RD)	3	Transmit Data (TD)	2	Chassis Ground	1
Clear To Send (CTS)	5	Request To Send (RTS)	4	Signal Ground	7
Data Set Ready (DSR)	6	Data Terminal Ready (DTR)	20		
Data Carrier Detect (DCD)	8				

Received Data (RD) — Serial data stream to the printer.

Transmitted Data (TD) — Serial data stream from the printer for transmitting status and control information to the host. Subject to protocol selection.

Request To Send (RTS) — Control signal from the printer. Subject to configuration.

Clear To Send (CTS) — Status signal to the printer indicating the host is ready to receive data/status signals from the printer.

Data Set Ready (DSR) — Status signal to the printer indicating the host is in a ready condition.

Data Carrier Detect (DCD) — Status signal to the printer. The ON condition is required for the printer to receive data.

Data Terminal Ready (DTR) — Control signal from the printer. Subject to configuration.

Table 5–6. RS–422 Serial Interface Connector Pin Assignments

Input Signals		Output Signals		Miscellaneous	
Signal	Pin	Signal	Pin	Signal	Pin
– Receive Data (–RD)	15	– Transmit Data (–TD)	19	Chassis Ground	1
+ Receive Data (+RD)	17	+ Transmit Data (+TD)	25	Signal Ground	7

RS–422

+RD, –RD — Serial data stream differentially received by printer.

+TD, –TD — Differentially driven serial data stream for transmitting status and control information to the host. Subject to protocol selection.

NOTE: $\pm$ **RD** and $\pm$ **TD** form signal and return paths of a differential line signal.

6 Troubleshooting

- Cleaning the Printer [6-2](#)
 - Exterior Cleaning [6-2](#)
 - Interior Cleaning [6-2](#)
- Printing a Hex Dump [6-4](#)
- Fault Messages [6-5](#)
 - Fault Messages Requiring Field Service Attention [6-5](#)
 - LCD Message Troubleshooting Table [6-6](#)

Cleaning Requirements

Clean the printer every six months or after every 1000 hours of operation, whichever occurs first. If the printer is located in a dusty area or is used for heavy duty printing, clean it more often.

WARNING



Disconnect the power source before cleaning the printer.

Vor dem Säubern des Druckers ist die Netzverbindung zu unterbrechen.

Débranchez l'alimentation avant de nettoyer l'imprimante.

Exterior Cleaning

Clean the outside of the cabinet with a soft, lint-free cloth and mild detergent soap. (Dishwashing liquid works well.) Do not use abrasive powders or chemical solvents. Clean the windows with plain water or mild window cleaner. Always apply the cleaning solution to the cloth; never pour cleaning solution directly onto the printer.

Interior Cleaning

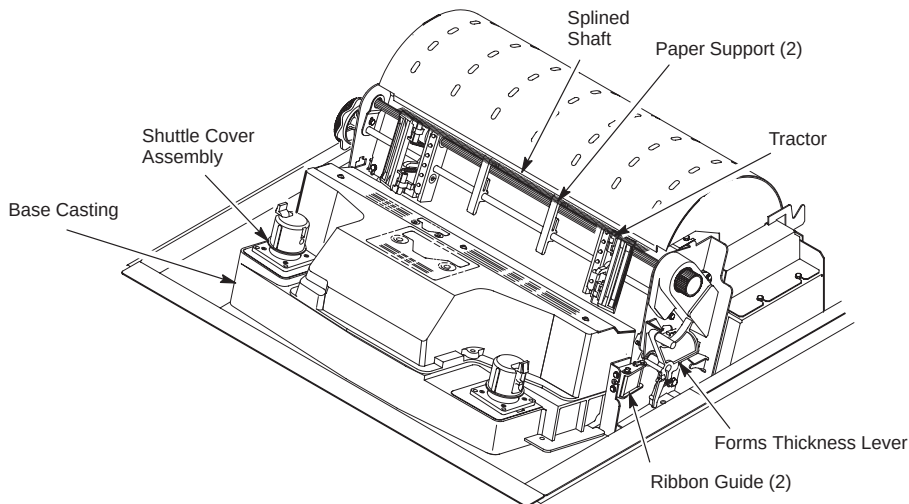
Over time, particles of paper and ink accumulate inside impact printers. This is normal. Paper dust and ink build-up must be periodically removed to avoid degraded print quality. Most paper dust accumulates around the ends of the platen and ribbon path.

To clean the interior of the printer perform the following steps.

1. Power off the printer and unplug the printer power cord.
2. Open the printer cover. Fully raise the forms thickness lever. Unload paper.
3. Unlatch both ribbon spools and carefully lift them off the hubs. Raise the ribbon out of the ribbon path.
4. Using a soft-bristled, non-metallic brush (such as a toothbrush), brush paper dust and ribbon lint off the tractors, shuttle cover assembly, base casting, and ribbon guides. Vacuum up the residue.

CAUTION *Vacuum carefully around the hammer bank and surrounding area to avoid damage. To avoid corrosion damage, use only alcohol when cleaning printer mechanical elements. Solutions used to clean mechanical elements must contain no water.*

5. Wipe the splined shaft with a soft cloth.
6. Check the ribbon mask and hammer bank cover for bits of torn paper or ribbon lint.
7. Using a soft cloth lightly moistened with anhydrous alcohol, remove dust and ink from the platen. (The platen is the thick silver bar behind the hammer bank cover that rotates when the forms thickness lever is rotated.) Clean the ribbon guides.
8. Brush and vacuum up dust or residue that has accumulated inside the lower cabinet.
9. Wipe the lower cabinet interior with a clean, lint-free cloth dampened (not wet) with water and mild detergent, or spray the surfaces lightly with window cleaning solution. Dry the lower cabinet interior by wiping it down with a clean, lint-free cloth.
10. Install the ribbon and load paper.



Printing a Hex Dump

A hex code printout (or hex dump) is a translation of all host interface data to its hexadecimal equivalent, listing all ASCII character data received from the host computer with their corresponding two-digit hexadecimal codes. Hex dumps are used to troubleshoot printer data reception problems.

Printable characters print as the assigned symbol; nonprintable characters are indicated by a period (.).

```
!"#$%&'()*+,-./ 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
0123456789:;<=>? 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
@ABCDEFGHIJKLMNO 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
PQRSTUVWXYZ[\]^_ 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
`abcdefg hijklmno 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
pqrstuvwxyz{|}~ 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 20
!"#$%&'()*+,-./ 0 1 2 3 4 5 6 7 8 9 A B C D E F
123456789:;<=>?@ 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40
ABCDEFGHIJ.!"#$%& 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56
'()*+,-./0123456 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36
789:;<=>?@ABCDEFG 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46
HIJKLMN O PQRSTU 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56
VWXYZ[\]^_`abcde 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66
ghijklmnopqrstuv 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76
wxyz{|}~!"#$%&' 77 78 79 7A 7B 7C 7D 7E 20 21 22 23 24 25 26 27
()*+,-./01234567 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37
89:;<=>?@ABCDEFG 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47
HI.!"#$%&'()*+,- 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
./0123456789:;<= 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D
>?@ABCDEFGHIJKLM 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D
NOPQRSTUVWXYZ[\ 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D
]^_`abcdefg hijkl 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D
nopqrstuvwxyz{|} 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D
~!"#$%&'()*+,- 7E 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E
/0123456789:;<= 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E
?@ABCDEFGHIJ.!"$ 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E
%&'()*+,-./01234 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34
56789:;<=>?@ABCD 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44
EFGHIJKLMN O PQRST 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54
UVWXYZ[\]^_`abcd 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64
efghijklmnopqrst 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74
uvwxyz{|}~!"#$% 75 76 77 78 79 7A 7B 7C 7D 7E 20 21 22 23 24 25
&'()*+,-./012345 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35
6789:;<=>?@ABCDE 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45
FGHIJ.!"#$%&'()* 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54
+,-./0123456789: 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B
<=>?@ABCDEFGHIJK 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B
LMNOPQRSTUVWXYZ 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B
\]^_`abcdefg hijk 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B
lmnopqrstuvwxyz{| 6C 6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B
}~!"#$%&'()*+,- 7C 7D 7E 20 21 22 23 24 25 26 27 28 29 2A 2B 2C
```

Figure 6–1. Hex Dump Sample

Fault Messages

If a fault condition occurs in the printer, the status indicator on the control panel flashes on and off and the message display indicates the specific fault. Fault messages are summarized in [Table 6–1](#).

Displayed faults fall into one of two categories:

- Operator correctable
- Field service required

For the operator–correctable faults, follow the suggested corrective action in the fault message description. After correcting the displayed fault, press the CLEAR key to clear the error message and status indicator and resume printing. If the fault message reappears, contact your authorized service representative.

NOTE: The [Maintenance Manual](#) provides more detailed information and procedures for resolving fault conditions. However, many of the procedures described there must be performed only by your authorized service representative.

Fault Messages Requiring Field Service Attention

If a fault is not correctable by the operator, the fault message is followed by an asterisk (*). This usually indicates that an authorized service representative is needed. You may try two steps to clear the fault before you call your authorized service representative:

1. Set the printer power switch to O (off), wait 15 seconds, then turn the printer on again. Run your print job again. If the message does not appear, it was a false indication and no further attention is required.
2. If the message reappears, press the CLEAR key. If the message goes away, it was a false indication and no further attention is required. If the message reappears, call your authorized service representative.

Table 6–1. LCD Message Troubleshooting Table

Displayed Message	Can User Correct?	Explanation	Solution
8.5V PWR FAIL *	No	Internal power failure.	Contact your authorized service representative. ¹
15V CTL FAIL *	No	Controller voltage failure.	Contact your authorized service representative. ¹
23.5V CTL FAIL *	No	Controller voltage failure.	Contact your authorized service representative. ¹
48V PWR FAIL *	No	Internal power failure.	Contact your authorized service representative. ¹
ACCESS NULL PTR*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
ACTIVATE LOST	No	Printer detects twinax protocol communication errors.	The printer reports the error.
A TO D OVERUN*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
BUFFER OVERFLOW	Yes	Host sends data after the printer buffer is full. (Serial interface.)	Check your serial host interface parameter settings; if necessary, adjust them so that they match the settings of the attached host.
BUFFER OVERRUN	Yes	Receive overrun. (Serial interface)	Check printer serial port configuration setup. Ensure the baud rate and data protocol match both host and printer settings.
CLEAR PAPER JAM	Yes	No paper motion.	Clear jam and reload paper. If this message recurs, contact your authorized service representative. ¹
CLOSE PLATEN	Yes	The forms thickness lever is open.	Close the forms thickness lever.
COIL HOT	Yes	One or more hammer coils are hot.	Check printer environment. If too hot or dusty, relocate printer. May occur normally on graphically intense print jobs.
15 COMM CHECK	Yes	Line not active. (Twinax interface)	Check cable connection.
CTL VOLT FAIL *	No	Controller voltage failure.	Contact your authorized service representative. ¹
DRV R CIR BAD*	No	Hammer coil count test failed.	Contact your authorized service representative. ¹

Table 6–1 LCD Message Troubleshooting Table (continued)

Displayed Message	Can User Correct?	Explanation	Solution
EXHAUST FAN FLT (Cabinet model only)	Yes	Sensors cannot detect current in fan circuit.	Power off the printer and remove the paper path. Check that the fan cable connector is connected. Check for obstruction of vents and fan airway, and remove any obstructions. Check for items beneath the printer blocking cabinet vents. Power back on the printer. If this message recurs, contact your authorized service representative. ¹
FIRMWARE ERROR*	No	Application software tried to perform an illegal printer function or damaged memory detected on board.	Contact your authorized service representative. ¹
FM HEADER ERROR	No	Applications software has violated header parameters.	Contact your system administrator
FRAMING ERROR	Yes	Serial framing error. (Serial interface.)	Check your serial host interface parameter settings; if necessary, adjust them so that they match the settings of the attached host.
GRF CHK ERROR PRESS STOP	Yes	Printer has received a non–printable character.	Press CLEAR and then ONLINE.
HAM. COIL OPEN*	No	Electrical malfunction of one or more hammer coils.	Contact your authorized service representative. ¹
HAMMER COIL BAD #, #, #	No	Hammer coil # failed current test at power up.	Contact your authorized service representative. ¹
HMR BANK FAN FLT	Yes	Sensors cannot detect current in fan circuit.	Check that fan cable is connected. Check for obstruction of vents and fan airway; remove any obstructions. Check for items beneath the printer blocking cabinet vents. Power back on the printer. If this message recurs, contact your authorized service representative. ¹
08 HOLD PRINT TIMEOUT	Yes	Printer was off–line more than 10 minutes and the “Intervention Required” parameter is set to “Send to Host.”	Press ONLINE to put printer in online state.

Table 6–1 LCD Message Troubleshooting Table (continued)

Displayed Message	Can User Correct?	Explanation	Solution
HB NOT INSTALLD*	No	Self-test does not detect hammer coils.	Contact your authorized service representative. ¹
06 HOST REQUEST	Yes	Host attention message.	The host computer or printer controller requires attention.
ILL EXT BUS ACC*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
ILLGL OPR ACCSS*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
ILL INST ACCSS*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
INTAKE FAN FAULT	Yes	Sensors cannot detect current in fan circuit.	See description for HMR BANK FAN FLT.
INVALID ACTIVATE	No	Printer detects twinax protocol communication errors.	The printer reports the error.
22 INVALID ADDR	Yes	Unit address not recognized by printer. (Twinax interface)	Ensure that printer address matches host setting.
INVALID COMMAND	No	Printer detects twinax protocol communication errors.	The printer reports the error, host action is required.
LO DRV. SHORT *	No	Circuit(s) on the hammer bank or in the hammer bank power cable shorted to ground.	Contact your authorized service representative. ¹
LOAD PAPER	Yes	Printer is out of paper.	Load paper.
ONLINE CU TIMED OUT	Yes	Enable poll timeout, The printer was not enabled for one minute. (Coax interface)	Check cable connection and host system.
ONLINE 28 CU NOT ENAB	Yes	Poll timeout error. The printer was not polled for one minute. (Coax interface)	Check cable connection and host system.
ONLINE 8344 FAILED	No	Link-level code test detects hardware failure.	Contact your authorized service representative. ¹
PAP BAD TABLE*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
UNDFNED OPCODE*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹

Table 6–1 LCD Message Troubleshooting Table (continued)

Displayed Message	Can User Correct?	Explanation	Solution
PAP FIFO OVERFL*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP BSY TOO LNG*	No	Fatal firmware error on controller board.	Contact authorized service representative. ¹
PAP FIFO UNDRFL*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP ILLGL ST*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP INCMPL ENER*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP INVLD CMD*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP INVLD PARM*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP NOT SCHED*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP NT AT SPEED*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PAP UNEXP INT*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
32 PAPER JAM TIME-OUT	Yes	A timeout message is sent to the host if no paper motion has occurred for 10 minutes after CLEAR was pressed to clear the jam fault.	Clear paper jam and reload paper.
31 PAPER OUT TIMEOUT	Yes	A timeout message is sent to the host if paper is not loaded 10 minutes after CLEAR was pressed to clear the paper out fault.	Load paper.
PARAMETER ERROR	No	Illegal parameter value received in command code.	Contact your system administrator.
POWER SUPPLY HOT	Yes	Power supply sensors report high temperatures.	Check printer environment. If hot or dusty , relocate printer. Contact your authorized service representative if this occurs frequently. ¹
PROTECTED INSTR*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹

Table 6–1 LCD Message Troubleshooting Table (continued)

Displayed Message	Can User Correct?	Explanation	Solution
PWR SUPP VOLT *	No	Power supply failed.	Replace power supply board.
PARITY ERROR	Yes	Parity error (serial interface)	Check your serial host interface parameter settings; if necessary, adjust them so that they match the settings of the attached host.
33 PLATEN OPEN TIMEOUT	Yes	Forms thickness lever has been open for at least one minute.	Close forms thickness lever.
PLAT INV PARM*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PLAT INV CMD*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
PLAT INV STATE*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
POWER SAVER MODE	N/A	Status message: printer is in low–energy idle state, all fans and higher voltages are off, only +5Vdc logic circuits are active.	No action required.
PRINTER HOT	Yes	Controller board sensors report high temperatures on the board.	Check printer environment. If hot or dusty , relocate printer. Contact your authorized service representative if this occurs frequently. ¹
RIB INVLD STATE*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
SCS COMMAND ER- ROR	No	Printer received undefined control character.	Contact your system administrator.
34 RIBBON STALL TIMEOUT	Yes	A timeout message is sent to the host if no ribbon motion has occurred for 10 minutes after CLEAR was pressed to clear the jam fault.	Clear ribbon jam and reload ribbon.

Table 6–1 LCD Message Troubleshooting Table (continued)

Displayed Message	Can User Correct?	Explanation	Solution
RIBBON INK OUT CHANGE RIBBON	Yes	The RibbonMinder program is warning that the amount of ink in the ribbon has reached 0%.	Replace ribbon or press CLEAR for two additional minutes of printing before the fault displays again. See “RibbonMinder” chapter.
UP DRV. SHORT *	No	Hammer driver circuits on the boards shorted to ground.	Contact your authorized service representative. ¹
RIB INVLD CMD*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
RIBBON DRIVE	No	CMX controller does not detect ribbon drive motor.	Contact your authorized service representative. ¹
SECURITY CODE VIOLATION	No	Security code of PAL on controller board does not match code of firmware on the controller board.	Contact your authorized service representative. ¹
SF ERROR	No	Application software has violated structured data field parameters.	Contact your system administrator.
SHUTL INV CMD*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
SHUTL INV PARM*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
SHUTTLE JAM	Yes	No shuttle movement or shuttle moving at wrong speed.	Check for obstruction to shuttle, a twisted ribbon, or forms thickness lever closed too tightly. If fault source is not apparent, contact your authorized service representative.
SOFTWARE ERROR * Cycle power	No	Application software tried to perform illegal printer function, or damaged logic circuits found on controller board.	Contact your authorized service representative. ¹
STACK OVERFLOW*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
STACKER FAULT	Yes	Stacker is not functioning correctly.	Check for obstructions in the stacker area. If fault persists, contact your authorized service representative. ¹
STACKER FULL	Yes	Power stacker is full of paper.	Remove paper.

Table 6–1 LCD Message Troubleshooting Table (continued)

Displayed Message	Can User Correct?	Explanation	Solution
STACKER JAM	Yes	Paper is jammed in the power stacker area.	Remove paper.
TCB CORRUPTED*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
UNDEF INTERRUPT*	No	Fatal firmware error on controller board.	Contact your authorized service representative. ¹
¹ Before contacting an authorized service representative, power off the printer, wait 15 seconds, then power it back on and rerun your print job. If the message reappears, press CLEAR. If the fault message still displays, then contact your authorized service representative.			

A

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Ribbon Specifications

Extended Life Text Ribbon Kit (60 yards)	P/N 107675–001
Extended Life Text Ribbon Kit (100 yards)	P/N 107675–007
Bar Code Ribbon Kit (60 yards)	P/N 107675–005
Bar Code Ribbon Kit (100 yards)	P/N 107675–008

NOTE: Only cabinet models support 100–yard ribbons. Pedestal models must use 60–yard ribbons. Each kit contains six ribbons.

Paper Specifications

Paper

Type:	Edge–perforated, fan–fold, 3 to 16 inches (7.62 to 40.64 cm) wide, 2 to 16 inches (5.08 to 40.64 cm) long. Power Paper Stacker option is 5 to 12 inches (12.7 to 30.45 cm) long.	
Thickness:	Single–part: 15 to 100 pound (6.80 to 45.36 kg) stock; Multi–part: 1– to 6–part forms (maximum 12 lb [5.44 kg] ply of upper plies)	
Sheet Thickness:	0.025 inch (0.064 cm) maximum	
Drive:	Adjustable tractors (6–pin engagement)	
Slew Rates:	<u>Fast</u>	<u>Slow</u>
P5005A / P5205A	12 ips	10.5 ips
P5008 / P5208	16 ips	8 ips
P5009 / P5209	16 ips	8 ips
P5212	20 ips	10 ips
P5214	20 ips	10 ips

Labels

On Backing:	One-part continuous perforated fanfold back form. Labels must be placed at least 1/6 inch (0.42 cm) from the fan-fold perforation. Backing adhesive must not be squeezed out during printing.
Sheet Size:	3 to 16 inches (7.62 to 40.64 cm) wide, including the two standard perforated tractor feed strips. A maximum sheet length of 16 inches (40.64 cm) between top and bottom perforations. Power Paper Stacker option is 5 to 12 inches (12.7 to 30.45 cm) long.
Thickness:	Not to exceed 0.025 inch (0.064 cm) (including backing sheet)

Printer Dimensions

Cabinet Model

Height:	42.5 inches (108 cm)
Width:	27 inches (68.6 cm)
Depth:	29 inches (73.7 cm)
Weight:	225 lbs. (102.1 kg) unpackaged 285 lbs. (129.3 kg) packaged

Cabinet Model with Power Stacker Option

Height:	42.5 inches (108 cm)
Width:	27 inches (68.6 cm)
Depth:	32.5 inches (82.5 cm)
Weight:	246 lbs. (112 kg) unpackaged 306 lbs. (139 kg) packaged

Pedestal Model

Height:	35 inches (88.9 cm)
Width:	24.6 inches (62.5 cm)
Depth:	30.0 inches (76.2 cm)
Weight:	120 lbs. (54.4 kg) unpackaged 160 lbs. (72.6 kg) packaged

Environmental Characteristics

Temperature

Operating	41° to 104° F (5° to 40° C) up to 5000 feet (1524 meters) 41° to 90° F (5° to 32° C) up to 8000 feet (2438 meters)
Storage	−40° to 158° F (− 40° to 70° C)

Relative Humidity

Operating	15% to 80% (noncondensing)
Storage	15% to 90% (noncondensing)

Acoustic Noise Level

	Cabinet Models	Pedestal Models
Acoustic Noise Levels per ISO 9296		
Printing	52 dB	(5005) 60 dB
	52 dB	(5008) 62 dB
	52 dB	(5009) 62 dB
	6.8 Bel	8.0 Bel
Standby	48 dB	50 dB
	6.3 Bel	6.5 Bel
Geraeuschemission nach ISO 9296		
Druckend	52 dB	65 dB
	6.8 Bel	8.0 Bel
Betriebsbereit	48 dB	50 dB
	6.3 Bel	6.5 Bel

Energy Star

ProLine Series 5 printers comply with the requirements of the Energy Star Office Equipment Program of the U.S. Environmental Protection Agency.

When in the reduced–power idle state, the printer displays “Power Saver Mode.”

Electrical Characteristics

Input Voltage

Line Voltage Design Range	Line Frequency	500/800/900/1200 LPM	1400 LPM
88–135 V RMS	47–63 Hz	6A @ 100 V	8A @ 100 V
178–270 V RMS	47–63 Hz	3A @ 200 V	5A @ 200 V

Power Consumption

Operating Mode	Units	Power Consumption			
		500 LPM	800/900 LPM	1200 LPM	1400 LPM
Standby	Watts	30 (60)	30 (60)	45 (80)	45 (80)
	BTU/Hour	100 (205)	100 (205)	154 (273)	154 (273)
Nominal*	Watts	180	220	275	310
	BTU/Hour	615	750	940	1058
Maximum**	Watts	270	315	435	440
	BTU/Hour	920	1075	1485	1500

Numbers represent consumption in Energy Star Mode. Numbers in parenthesis represent standby mode.

* Nominal power measured at 120 VAC while printing ASCII Shift–Recycle.

** Maximum power measured at 120 VAC while printing Black Plot.

Interfaces

Type:	Standard:	IEEE 1284 Parallel, Centronics Parallel, RS-232/RS-422 serial, Dataproducts Parallel
	Optional:	Coax, Twinax, Dataproducts Longlines, Ethernet 10Base-T, Ethernet 10Base-2.
Logic Levels:		TTL/EIA-232E/EIA-422B
Transfer Rates:		Up to 200 Kilobytes on parallel interface Up to 19.2K baud on RS-232 serial interface Up to 115.2K baud on RS-422 serial interface

Printing Rates

The printing speed of text is measured in lines per minute (lpm), and is a function of the selected font and the vertical dot density. Printing speed is independent of the number of characters configured in the character set repertoire. Print rates for lines containing attributes such as bold or emphasized printing, superscripts, subscripts, or elongated attributes will decrease to not less than half the rates of the font without such attributes. The exact print rate of lines containing these attributes depends on the specific print job, but software maximizes the throughput by dynamically determining which dot rows contain adjacent dots and must be printed in two strokes.

The reverse paper feed capability allows the printing of multiple densities on a single line. This is useful in printing forms and text together or in mixing different fonts on a print line. Use of multiple densities and reverse paper feed also affects throughput.

Table A–1. Nominal Printing Rates

PRINT QUALITY DOT DENSITY (DPI) NOTE ①	CHARACTERS PER INCH	DOT MATRIX	PERFORMANCE															
		NOTE ②	UPPERCASE ONLY LPM					DESCENDERS & UNDERLINE LPM					PLOT MODE IPM					
			MODEL	05A	08	09	12	14	05A	08	09	12	14	05A	08	09	12	14
CORRESPONDENCE 90 (180) X 96	10 12 15	7 (13) X 9 + 3 6 (11) X 9 + 3 5 (9) X 9 + 3		200	320	353	480	560	154	247	270	370	432	21	33	36	50	58
DATA PROCESSING 60 (120) X 72	10 12 13.3 15 17.1	5 (9) X 7 + 2 4 (7) X 7 + 2 4 (7) X 7 + 2 3 (5) X 7 + 2 3 (5) X 7 + 2		375	600	662	900	1050	300	480	529	720	840	42	67	75	100	117
HIGH SPEED 60 (120) X 48	10 12 13.3	5 (9) X 5 + 1 4 (7) X 5 + 1 4 (7) X 5 + 1		500	800	900	1200	1400	428	684	770	1026	1197	63	100	112	150	175

NOTE ① A (B) X C, where: A is maximum horizontal dot density
B is horizontal dot placement density
C is vertical dot density

NOTE ② D (E) X F + G, where: D is maximum number of dots that may be placed on
E horizontal dot positions
F is number of vertical dots for uppercase symbols
G is number of dots available for descenders

B Demand Printing

Overview [B-2](#)

Simple Tear [B-3](#)

Form Saver Mode [B-5](#)

Overview

There are a few general parameters to determine before using the VIEW/EJECT print options:

- It must be determined if the printer has a quick access cover where paper is ejected from the top, or a regular cover where paper is ejected from the rear.
- The tear position needs to be set. The default of 5.12 inches is adequate for the quick access cover. For the standard cover, 9.92 inches should be selected. These measurements are general guidelines and can be adjusted as necessary.
- The proper form height must be set. This will allow the printer to know where the end of a page is.
- The top of form setting needs to be entered.

Simple Tear

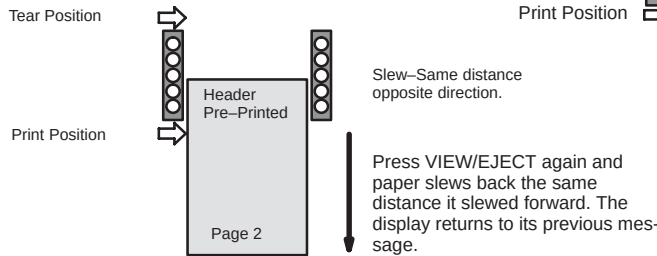
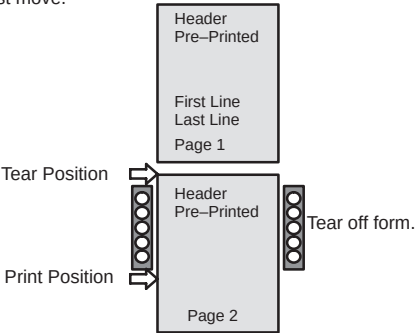
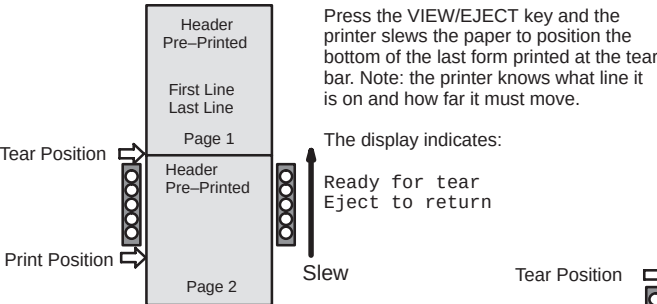
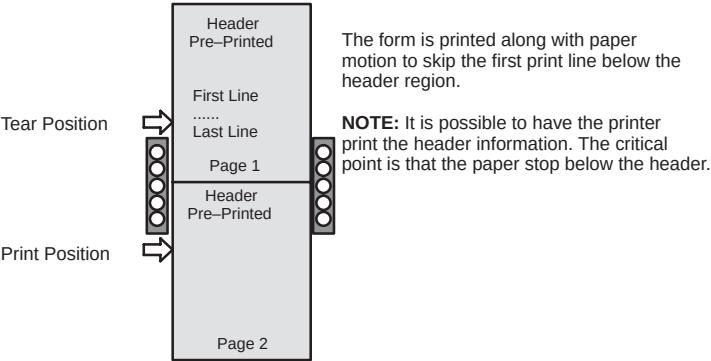
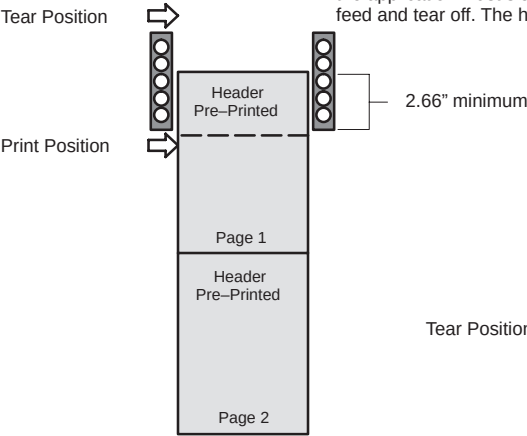
The Simple Tear Mode requires special form layout and application design. However, it allows demand printing without losing any forms. The parameters for using this function are:

When the VIEW/EJECT key is pressed once, the printer slews the bottom of the last printed form to the tear position.

When the VIEW/EJECT key is pressed a second time, the paper reverses the exact distance it slewed. For it to work properly:

- The form length must be set correctly.
- The Top-of-Form must be set to the actual top of form.
- There must be a space of at least 2.66 inches from the top of form (which can be used for pre-printed headers) to prevent the paper from falling out of the tractors when reversing. The paper motions are as shown in the following diagram:

The form must have a preprinted header or a header must be printed before the form is torn off. In either case, the application must slew at least this distance prior to the paper feed and tear off. The header must be no less than 2.66 inches.



Form Saver Mode

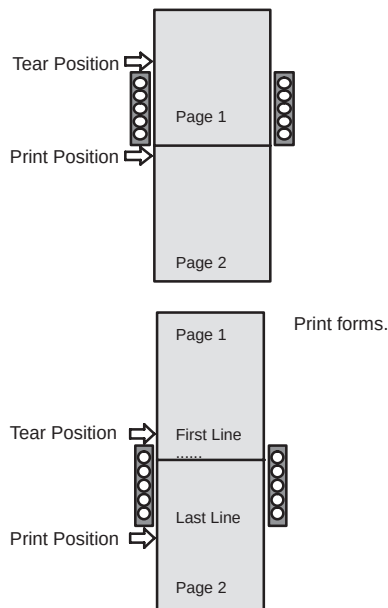
The Form Saver Mode does not require any special forms or applications. Instead, the printer determines the proper motion to allow demand printing with the least amount of lost forms. Only the form length needs to be set.

When the VIEW/EJECT key is pressed, the printer slews the bottom of the last printed form to the tear position. When the VIEW/EJECT is pressed a second time, the paper reverses to the top of the first possible form available for printing.

This mode may act differently depending on the form length. In all cases, the printer has the intelligence to keep form loss to a minimum.

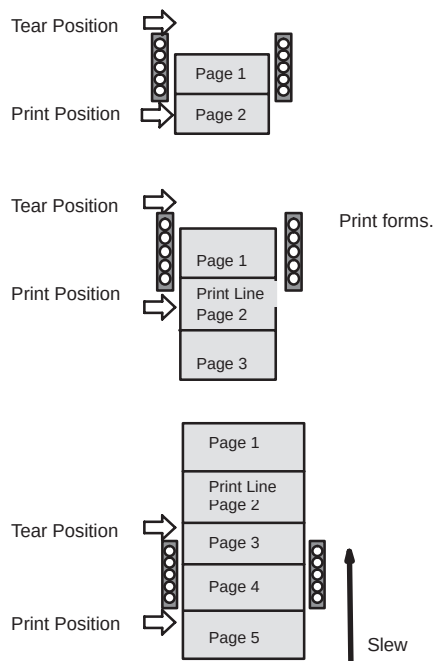
Long Form Example:

The user loads paper and sets Top of Form. Hence, the printer is ready to print at the first line.

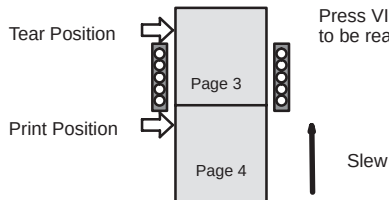
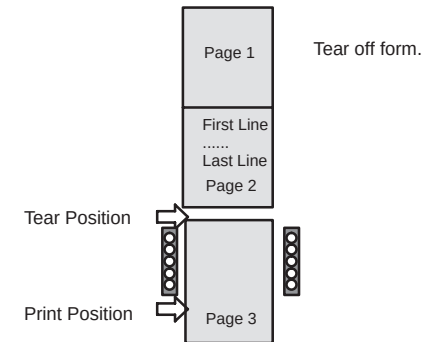
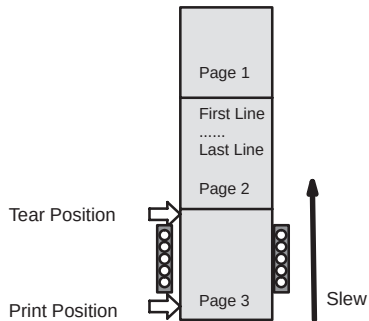
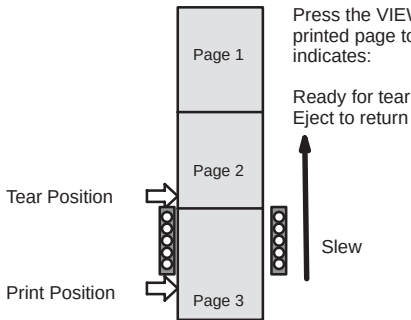


Short Form Example:

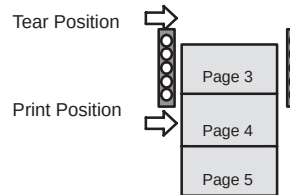
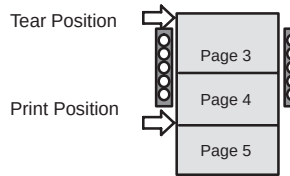
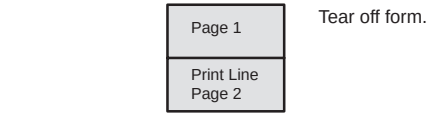
The user loads paper and sets Top of Form.



Long Form Example (continued)



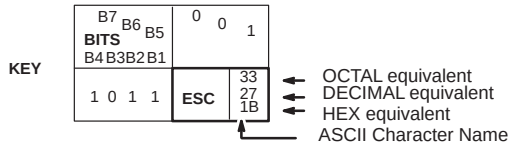
Short Form Example (continued)



Press VIEW/EJECT and the printer positions the paper to be ready to print at the top of the first form available. Note, this time it moves backwards.

Press VIEW/EJECT and the printer positions the paper to be ready to print at the top of the first form available.

C ASCII Character Set



B7 B6 B5 BITS B4B3B2B1	ROW	0 0 0		0 0 1		0 1 0		0 1 1		1 0 0		1 0 1		1 1 0		1 1 1	
		COLUMN 0		1		2		3		4		5		6		7	
0 0 0 0	0	NUL	0 0 0	DLE	20 16 10	SP	40 32 20	0	60 48 30	@	100 64 40	P	120 80 50	\	140 96 60	p	160 112 70
0 0 0 1	1	SOH	1 1 1	DC1 (XON)	21 17 11	!	41 33 21	1	61 49 31	A	101 65 41	Q	121 81 51	a	141 97 61	q	161 113 71
0 0 1 0	2	STX	2 2 2	DC2	18 12	"	42 34 22	2	50 32	B	102 66 42	R	122 82 52	b	98 62	r	162 114 72
0 0 1 1	3	ETX	3 3 3	DC3 (XOFF)	23 19 13	#	43 35 23	3	63 51 33	C	103 67 43	S	123 83 53	c	143 99 63	s	163 115 73
0 1 0 0	4	EOT	4 4 4	DC4	24 20 14	\$	44 36 24	4	64 52 34	D	104 68 44	T	124 84 54	d	144 100 64	t	164 116 74
0 1 0 1	5	ENQ	5 5 5	NAK	25 21 15	%	45 37 25	5	65 53 35	E	105 69 45	U	125 85 55	e	145 101 65	u	165 117 75
0 1 1 0	6	ACK	6 6 6	SYN	26 22 16	&	46 38 26	6	66 54 36	F	106 70 46	V	126 86 56	f	146 102 66	v	166 118 76
0 1 1 1	7	BEL	7 7 7	ETB	27 23 17	'	47 39 27	7	67 55 37	G	107 71 47	W	127 87 57	g	147 103 67	w	167 119 77
1 0 0 0	8	BS	10 8 8	CAN	30 24 18	(	50 40 28	8	70 56 38	H	110 72 48	X	130 88 58	h	150 104 68	x	170 120 78
1 0 0 1	9	HT	11 9 9	EM	31 25 19	)	51 41 29	9	71 57 39	I	111 73 49	Y	131 89 59	i	151 105 69	y	171 121 79
1 0 1 0	10	LF	12 10 0A	SUB	32 26 1A	*	52 42 2A	:	72 58 3A	J	112 74 4A	Z	132 90 5A	j	152 106 6A	z	172 122 7A
1 0 1 1	11	VT	13 11 0B	ESC	33 27 1B	+	53 43 2B	;	73 59 3B	K	113 75 4B	[	133 91 5B	k	153 107 6B	{	173 123 7B
1 1 0 0	12	FF	14 12 0C	FS	34 28 1C	,	54 44 2C	<	74 60 3C	L	114 76 4C	\	134 92 5C	l	154 108 6C		174 124 7C
1 1 0 1	13	CR	15 13 0D	GS	35 29 1D	-	55 45 2D	=	75 61 3D	M	115 77 4D	]	135 93 5D	m	155 109 6D	}	175 125 7D
1 1 1 0	14	SO	16 14 0E	RS	36 30 1E	.	56 46 2E	>	76 62 3E	N	116 78 4E		136 94 5E	n	156 110 6E	~	176 126 7E
1 1 1 1	15	SI	17 15 0F	US	37 31 1F	/	57 47 2F	?	77 63 3F	O	117 79 4F	-	137 95 5F	o	157 111 6F	DEL	177 127 7F

D **Communication and Trademark Information**

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COMMUNICATION NOTICES

Federal Communications Commission (FCC) Statement: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Printronix® is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications Compliance Statement:

This Class A digital apparatus meets all requirements of the Canadian Interference—Causing Equipment Regulations.

Avis de conformité aux normes du ministère des Communications du Canada:

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union (EC) Electromagnetic Compatibility Directives: This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Printronix® cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-Printronix® option cards.

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG–Konformitätszeichen zu führen.

Properly shielded and grounded cables and connectors must be used in order to reduce the potential for causing interference to radio and TV communication and to other electrical or electronic equipment.

Pedestal Models

This product has been tested and found to comply with limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese Klasse von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis: Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

Cabinet Models

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European standard EN 55022. The limits for Class B equipment were derived for typical environments to provide reasonable protection against interference with licensed communication devices.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

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